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Number 11

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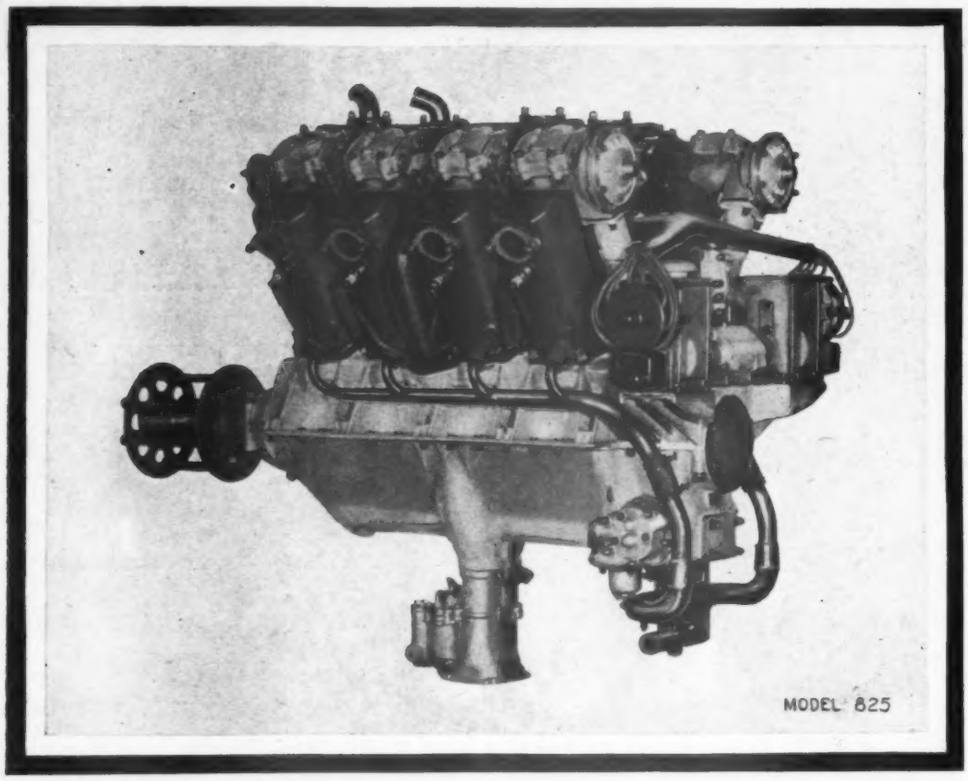
THE LOGIC OF A SEPARATE AIR FORCE
5TH DISTRICT CONVENTION, N.A.A.

THE GARDNER, MOFFAT CO., INC.
HIGHLAND, N. Y.
225 FOURTH AVENUE, NEW YORK

Entered as Second-Class Matter, Nov. 22, 1920, at the Post Office at Highland, N. Y., under Act of March 3, 1879.



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PACKARD

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World's Greatest Aero Motor Built for Our Navy

Three Hundred Hour Test At High Speed Without Making Stop

Power developed sufficient to carry airplane with full flying load around the world, or one-eighth of the way to the moon—Marvelous engine gets unprecedented test and surpasses all requirements

By JOSEPH MULVANEY

America, which gave to the world the first practical airplane, has now added immeasurably to that achievement by developing the greatest airplane engine in history.

This is the story of that engine—an engine that flew around the globe without a stop, to phrase it figuratively; an engine that exceeded every record on earth for energy, efficiency and endurance; an engine which in performance surpassed every superlative of fact or fiction. This is the story of the U-873 told for the first time:

Viewed as it rested on the testing block in the plant of the Aeromarine Plane and Motor Company at Keyport, N. J., there was nothing revolutionary in the appearance of the engine, but that is one of the strongest points about that motor. It isn't a freak, constructed on weird theories for service under impossible conditions.

Rear Admiral W. A. Moffett, chief of the bureau of aeronautics, conferred with the Aeromarine officials as to the possibility of subjecting the engine to a 100-hour test. The latter, knowing the engine, proposed a 200-hour test, and it was finally decided, in order to be sure to reach what they believed would be the "breakdown stage," to set 300 hours as the ultimate limit beyond which human ingenuity could not possibly carry the endurance of such a highly-stressed mechanism.

At the successful conclusion of the test the navy inspectors marveled when they stopped her, almost reluctantly, at many things. The vibration, or rather the lack of vibration, had been amazing. The angle of the cylinders accounted for that. The bearings were not burned. No, because they were oversize bearings. The oil had not clogged. No, because there was an oil separating system, operated by centrifugal force, that freed the carbon from the lubricant. Overheating? None! Valves ground? No, sir. Water-jacket cracked or leaking? Absolutely tight and sound. What is wrong, then? Nothing! !

SUPERLATIVE SURPASSED

Now this was a superlative performance, an achievement unprecedented, but the Aeromarine officials knew that engine better than many who watched ever guessed. Because before the Navy officials and inspectors had set eyes on her they had watched U-873 run for 200 hours without a halt, and they knew what the mighty machine could do.

And the commanders and inspectors who on eight-hour shifts had watched the miracle of power and endurance and efficiency did not regret the time spent in the watching. They brought back to Washington the report of the greatest motor in the world—they were the heralds of the revolution in aviation, and they were repaid manifold.

The entire Aeromarine engineering staff have been inundated with congratulations from engineering experts from all over the world on their success in enabling America to again record the most important aeronautical development since the Wrights developed the airplane.

Write for complete illustrated story on this marvelous test; also particulars of the famous AEROMARINE Navy H-S Flying Boats.—

Aeromarine Reg. U. S. Pat. Off. **Engineering and Sales Co.**

1800 Times Building, New York

THE LEADER OF COMMERCIAL AVIATION IN AMERICA—AEROMARINE

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FLYING is destined to become one of the foremost professions in the world. It is also destined to become one of the most profitable. But the rewards will go only to the men who get into aviation *now* -- while the industry is yet young. These are the men who will get the good jobs, the important positions, the big salaries.

You can be one of these men. The first necessity is training. You must learn all about airplane structure, airplane engines, and aerodynamics. You must learn how to fly—how to be a pilot.

WHERE TO LEARN

There is just one place where you can get the broadest knowledge of airplanes and the most thorough training in flying. That place is Dayton, Ohio -- the birthplace of the airplane -- the leading city in aviation progress.

In Dayton you will be taught mastery of the air on the great flying field of the Dayton Wright Company. You will learn flying under the supervision of expert and experienced teachers—men who have flown thousands upon thousands of miles and know exactly how to teach you what they have learned. You will use the very latest types of training planes. You will learn flying by the modified Gossport System.

As a pupil of the Dayton Wright Company you will have the opportunity of visiting McCook Field—the Engineering Division of the Army Air Service. Here you may study at first hand the designing and building of many types of military aircraft.

As a pupil of the Dayton Wright Company you will learn more than flying. You will learn the principles of standard airplane design, and many other things essential to real knowledge of commercial flying.

With Dayton Wright facilities and Dayton Wright methods of training you will gain in the shortest possible time that knowledge absolutely essential to your success in this great new profession of flying. The time to learn is *now*—when you can still get in on the ground floor.

WHAT TO DO FIRST

You know that flying has a limitless future. You know that *you* can rise with the industry—if you *only have the necessary knowledge.* You know that the sensible place to acquire this knowledge is at the Training School for Pilots conducted by the Dayton Wright Company—a training school located in the very center of airplane knowledge and progress.

Then the first thing for you to do is to write this company for full information regarding their Training School. You can make your future what you will by learning mastery of the air. Send now for full details. There is no charge—no obligation—no reason why you should delay a moment in sending for complete free information on the course of instruction offered by the Training School for Pilots.

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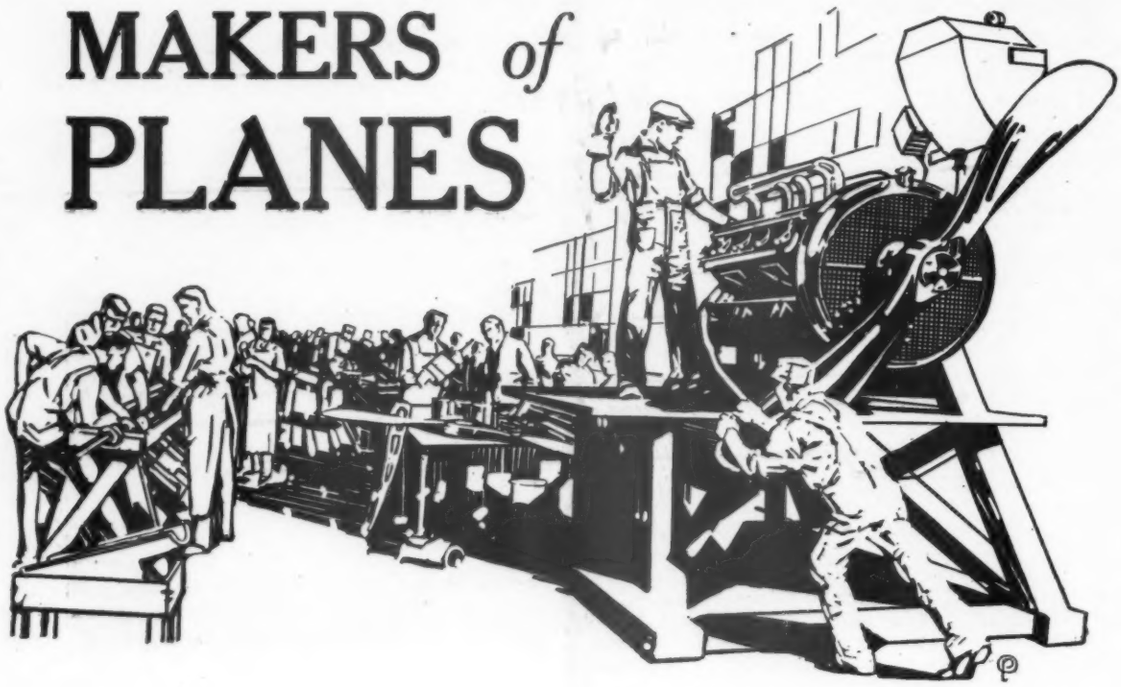

YOU will find splendid lots of component parts and accessories in this War Department.

Auction at Camp Logan Houston, Tex., Sept. 22, 1922

(9:30 A. M.)

Chief offerings are

215 Airplanes (without motors)—Std. J-1, Thomas-Morse and Martin R types.

384 Motors—Lawrence, LeRhone, L'Aviateur, Clerget, Curtiss OX-5, Gnome and Sturtevant.

204 sets Wings—Std. J-1.

460 Wings, uppers and lowers—Std. J-1.

1,209 Radiators—Mayo and Flexo.

6,107 Propellers—Hall-Scott, Breese Penguin, L.W.F., Club and Gnome.

33,345 Spark Plugs—Metric, Splitdorf, Rajah, Bethlehem and Champion.

39,751 Bearings—various types.

Quantities of Thomas-Morse spares, Gnome motor spare parts, altimeters, clocks, gauges and various parts for gasoline engines and ignition systems.

In addition to the foregoing, there probably will be offered for sale, at the same time and place, and by the same method, several lots of complete J-1 planes and Hispano-Suiza and Curtiss engines.

The Government reserves the right to reject any or all bids.

It will pay you to get the catalogs NOW and check the items in which you are interested. Then you will be prepared to get the fullest value from this auction. Write to the Commanding Officer, Aviation General Supply Depot, Camp Logan, Houston, Tex.

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27,717 gallons of high-grade Castor Oil, stored at the San Antonio Air Intermediate Depot, in 55-gal. steel drums, will be sold by

SEALED BIDS,

Closing Sept. 25 (2 P.M., Eastern Time)

IN WASHINGTON, D. C.

In disposing of this castor oil, no extra charge will be made for the drums or cans, and bidders should give their value consideration in making out proposals. Bids will be accepted only for the entire quantity of castor oil offered. For further information, and in transmitting bids, address Chief, M. D. & S. Sect., Air Service, Room 2624, Munitions Bldg., Washington, D. C.

U.S. AIR SERVICE

WAR DEPARTMENT

SEPTEMBER 11, 1922

AVIATION

VOL. XIII. NO. 11

Member of the Audit Bureau of Circulations

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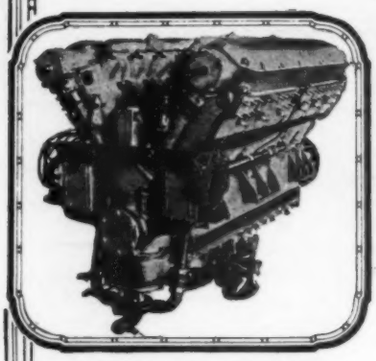
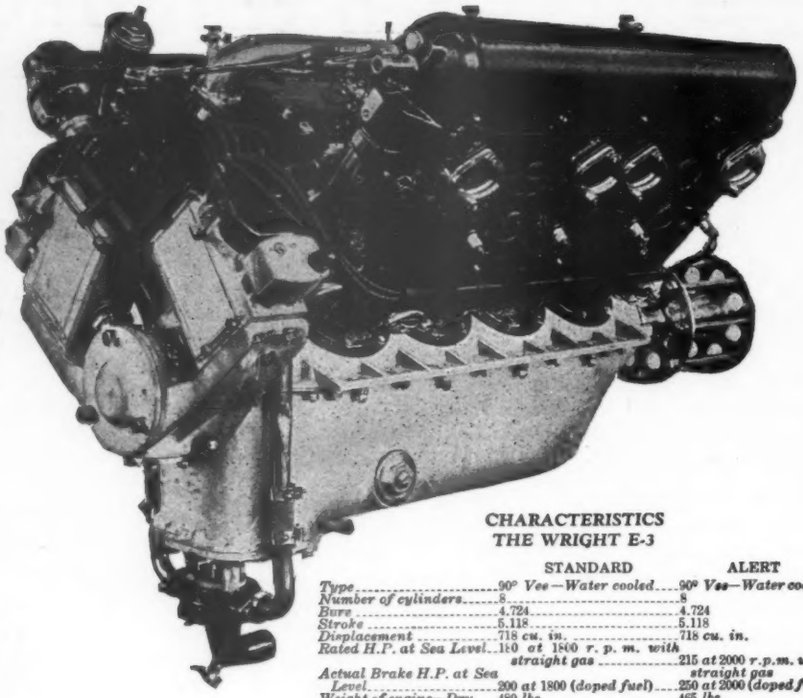
CONTRACTORS TO U. S. GOVERNMENT

ITHACA, NEW YORK

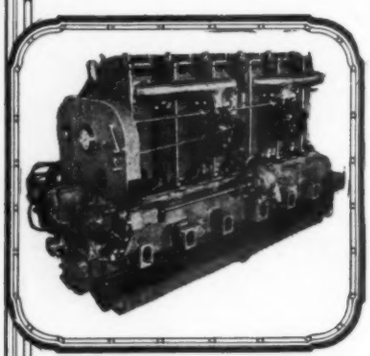


Model T-2—500 H. P. twelve cylinder engine of exceedingly clean design for long distance scouting. Designed for the U. S. Navy.



CHARACTERISTICS
THE WRIGHT E-3

	STANDARD	ALERT
Type	90° *Vee—Water cooled*	90° *Vee—Water cooled*
Number of cylinders	8	8
Bore	4.724	4.724
Stroke	5.118	5.118
Displacement	718 *cu. in.*	718 *cu. in.*
Rated H.P. at Sea Level	180 *at* 1800 *r. p. m. with straight gas*	215 *at* 2000 *r.p.m. with straight gas*
Actual Brake H.P. at Sea Level	200 *at* 1800 (*doped fuel*)	250 *at* 2000 (*doped fuel*)
Weight of engine—Dry	480 *lbs.*	465 *lbs.*
Lbs. per actual B.H.P.	2.4	1.86
Length Overall	49 1-8 *in.*	49 1-8 *in.*
Width Overall	33 7-16 *in*	33 7-16 *in.*
Height (Engine bearer to top)	18 3-4 *in.*	18 3-4 *in.*
Fuel Consumption (lbs. per H.P. Hr.)	.48	.48
Oil Consumption (lbs. per H.P. Hr.)	.015	.015



Model D-1—400 H.P. A large six cylinder, heavy duty engine, primarily for lighter-than-air craft. Designed for the U. S. Navy.

THE MOST EFFICIENT SMALL PURSUIT ENGINE IN THE WORLD

The Wright Model E-3 aeronautical engine which was based upon the original French Hispano-Suiza Model "A" has been refined and modified during its several years of manufacture until it has become the most efficient training and small pursuit engine in the world.

No other aeronautical engine built has had such an experience or such a production behind it. Over 50,000 of these models were produced for the war emergency and used by all the Allied Governments—proof positive of their efficiency.

Wright Aeronautical Corporation, Paterson, New Jersey, U. S. A.

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CONTRIBUTING EDITORS

Vol. XIII SEPTEMBER 11, 1922 No. 11

The Lack of Air Regulation

FEW people outside of the aeronautical community realize that the United States is today the only country of any importance where aerial navigation is not regulated by the government. In a number of states of the Union there exist air navigation regulations, and a number of cities has provided municipal ordinances—that's all.

Anyone with flying experience knows that none of these state laws and municipal ordinances is ever seriously enforced, chiefly for the reason that there is lacking the necessary machinery for doing so. Suppose a flier does violate a flying ordinance: his machine, as a rule, carries no identification marks, hence his apprehension is highly problematical. What more, there is no one in authority to apprehend him. As a result, any person in the United States has at present *carte blanche* to fly where, when and what he pleases, carrying passengers or not.

We have time and time again gone on record as favoring federal air regulation, for we believe that only a uniform law, enforced all over the country, can give air navigation the stabilizing influence that will come from a set of sensible rules applied for the benefit of the greatest number. State laws are likely to differ from one another—in fact they already do—not only in their regulatory provisions, but also in the manner in which they are enforced. No such difference would exist in federal air regulation: men and machines that fly would be subject to one law, and to one law only.

Early last spring the Senate passed the Wadsworth Bill for the regulation of air navigation. The bill then was taken up by the Committee of Interstate and Foreign Commerce and this is where it is still peacefully slumbering.

It seems difficult to find out just what is holding up prompt action. The original provisions of the Wadsworth Bill were generally found to be excellent, and were unqualifiedly endorsed by those authorized to speak in behalf of the aeronautical world. This notwithstanding, various changes were embodied in the bill and whatever their merit, the fact remains that it has not yet come up for discussion in Congress.

In the meantime irresponsible pilots are daily going up on machines of doubtful airworthiness, taking paying passengers and crashing every now and then. Such an accident is always a "story" for newspapers and receives widest publicity—and surely more space than the fact that the transcontinental air mail service has been operating for a year without an accident, or that the Aeromarine Airways have carried tens of thousands of passengers without a serious mishap.

How much longer will Congress take upon itself the responsibility of delaying action on the Wadsworth Bill? Many lives have been lost owing to its tardiness to understand the urgency of federal aircraft inspection and pilot licensing. What more will it take to make Congress sit up and take notice?

Quick Fulfillment

THE publisher of AVIATION while at the Baltimore flying meet last June was asked his opinion as to what had been the greatest progress in aviation during the year, what then seemed only the fanciful hopes of the enthusiast have two months later been fulfilled to the letter. The interview is only interesting now as an instance of how quickly advances are made in aviation.

What was said at the time follows:

"Soaring flight has been achieved and it only requires more practice to enable a pilot to remain in the air indefinitely. These airplanes have already remained in the air over twenty-one minutes and in this time only lost forty feet in height. Soaring airplanes are flying abroad and several are under construction in this country, one at the Massachusetts Institute of Technology at Cambridge.

"Just imagine a pilot "taking off" on a short runway, climbing on the crest of gusts of wind to any altitude he desires and hovering in the skies as long as he wishes to remain aloft. This is no fanciful picture. The Wright Brothers in 1911 learned to fly in an unpowered glider. In this crude machine they stayed in the air eleven minutes. Look at your watch for eleven minutes and you will then realize that indefinite flight without power is only another of the modern miracles that is near at hand.

"These new airplanes without engines are tne result of the great knowledge that has come from the discovery of new wing forms. These soaring airplanes are not gliders that lose height constantly and are kept up by the wind. They utilize a new principle of flight by what might be termed riding the gusts. They can fly into the wind, across the wind and with the wind, gaining altitude constantly given proper weather conditions. They soar like the albatross, condor and sea gull, that remain motionless in the air and seem to defy all laws of nature.

"Many valuable prizes are now being offered for soaring flight. The most interesting of these is for a two passenger "soarer". It is possible that next year a pilot may come to Baltimore and invite your Mayor to ride with him in an airplane that literally rides on the wings of the wind."

The Army and Navy at Detroit

THE large participation of Army and Navy aircraft and pilots in the Detroit airplane races which is made public in this issue is highly gratifying. It shows that our Air Services duly appreciate the great value of airplane races in developing new types of aircraft and that they wish to give every encouragement to the organizers of the Detroit aviation meet.

This meeting will be one of the most important ever held in this country and no person connected with aviation in any responsible capacity should fail to attend it.

Aero Chamber of Commerce Elects Officers

Inglis M. Uppercu new President -- Increase in Membership Reported by Board of Governors

At the annual meeting of the Board of Governors, Aeronautical Chamber of Commerce of America on Aug. 28 the following officers were elected: President, Inglis M. Uppercu, Aeromarine Plane & Motor Co., Keyport, N. J.; First Vice-President, Charles L. Lawrance, Lawrance Aero-Engine Corp., New York City; Second Vice-President, C. C. Witmer, Airship Manufacturing Company of America, Hammondsport, N. Y.; Third Vice-President. Lawrence B. Sperry, Lawrence Sperry Aircraft Co., Farmingdale, L. I.; Treasurer, Charles H. Colvin, Pioneer Instrument Co., Brooklyn, N. Y.; General Manager and Assistant Treasurer, S. S. Bradley; Secretary, Luther K. Bell; Assistant Secretary, Owen A. Shannon.

Increases in the Board of Governors from eleven to fifteen were made as follows: I. M. Uppercu; G. M. Williams, General Manager, Dayton Wright Co., Dayton, Ohio; W. C. Young, Goodyear Tire & Rubber Co., Akron, Ohio; Charles L. Lawrance.

Steady growth by the Aeronautical Chamber of Commerce was reported; recent additions to the membership including Goodrich Rubber Co., Akron, Ohio; Goodyear Tire and Rubber Co., Akron, Ohio; Wolverine Lubricants Co., of New York, New York; Rich Tool Co., Chicago, Ill.; Mosler Metal Products Corp., Mt. Vernon, N. Y.

Following are some interesting biographical notes on the newly elected officers of the Aeronautical Chamber of Commerce:

INGLIS MOORE UPPERCU

As president and owner of the Aeromarine Plane and Motor Corp. of Keyport, N. J., Mr. Uppercu has been prominently identified with the development of aviation in the United States. His interest in flying dates from 1908, when he started experimental work with aircraft. He had then three years flying experience.

Mr. Uppercu was born in Evanston, Ill., on Sept. 7, 1875. His parents were Jesse Wheat Uppercu and Laura Isabella (Hildebrant) Uppercu. He attended public schools at Bay Ridge, Brooklyn, later entering the Brooklyn Polytechnic Institute. He also studied law at Columbia University.

As owner of the Cadillac Motor Car Co. of New York, which sells Cadillac cars in New York, New Jersey and Connecticut, Mr. Uppercu has been one of the leaders in the automobile business in New York since 1896.

During the World War, the Aeromarine Plane and Motor Co. manufactured seaplanes and pontoons for the Navy. Since 1919 Mr. Uppercu has centered his activities upon the promotion of commercial aviation. The commercial flying boat services which he organized on the Key West to Havana and the Detroit to Cleveland routes as well as the general seaplane service out of New York harbor has probably been the greatest demonstration of the safety and practicability of air transport since the war.

Mr. Uppercu is in his moments of leisure a yachtsman and spends much of his time cruising.

CHARLES LANIER LAWRANCE

Charles Lanier Lawrance is one of America's pioneer aeronautical engineers, having specialized since his graduation from Yale in 1905 in gasoline motor design and in aerodynamics. In 1907 he was engineer of the B.L.M. Motor Car Co. In France, during 1912-13, he built an experimental 8 cyl., 200 hp. aviation engine, and developed the Eiffel No. 32 wing curve.

During 1915 Mr. Lawrance was engineer of the S. S. Pierce Aeroplane Co., which produced a number of Penguins equipped with 3-cyl. Lawrance air cooled engines for elementary pilot's training. From 1917 to date Mr. Lawrance has been president and chief engineer of the Lawrance Aero Engine Corp. His work in the development and production of America's only successful air-cooled radial engines has been recognized by their adoption for the U. S. Army and Navy planes.

CHARLES C. WITMER

Charles C. Witmer is another early airplane experimenter and pilot who has been continuously engaged in aeronautical activities since 1910, during which year he was with Glenn H. Curtiss at Hammondsport and San Diego, Calif. Mr. Witmer learned to fly in 1911 and during that and the following year he engaged in exhibition work in twenty states. He demonstrated and delivered Curtiss products in Russia, Germany, France and Austria during 1912-13. In 1913 he was also employed as pilot by Harold F. McCormick, president of the International Harvester Co. Another foreign trip in the interests of aviation took him again to Russia in 1914-16.

Inglis M. Uppercu, the new president of the Aeronautical Chamber of Commerce

Mr. Witmer entered the U. S. Naval Reserve Force as a Lieutenant in March 1917. He was promoted to Lieut. Comdr. in 1918. He was successively appointed superintendent, construction of aircraft, 1st Naval District; superintendent, construction of aircraft and inspection, Akron, O.

In 1920 he was one of the organizers of the Airship Manufacturing Co. of America and is at present actively engaged with that company in lighter-than-air development for the Army and Navy. Mr. Witmer holds Aero Club of California License No. 4, and Aero Club of America License No. 52.

LAWRENCE B. SPERRY

The name "Sperry" is associated in engineering circles throughout the world with many important inventions and technical triumphs. Lawrence B. Sperry, a pioneer in the field of aeronautical engineering, has ably maintained the Sperry prestige.

In 1909, when only 17 years old, Mr. Sperry built his own tractor biplane which he flew the following year. In 1911 he flew the first 5 cyl. Anzani-motored plane. He won first prize in the French Security Contest in 1914, and is the holder of the early seaplane duration record with pilot and one passenger of 1 hr. 25 min.

Mr. Sperry was the first man to join the Naval Flying Corps, Class No. 5, Jan 5, 1917, his naval service terminating when he crashed while flying an experimental aerial torpedo.

Lawrence B. Sperry, third vice-president, Ae. C. of C.

Charles L. Lawrance, first vice-president, Ae. C. of C.

Charles H. Colvin, treasurer, Ae. C. of C.

His professional activities began as manager, Airplane Department, Sperry Gyroscope Co., 1912-17. From 1917 to date the Lawrence Sperry Aircraft Co., Inc., of which he is the head, has been known for its development of successful types of Army and Navy planes and aircraft instruments. The company is also a leader in the field of aerial torpedo experimentation.

A recent novel and practical development is the Sperry skid landing gear applied to the Army messenger plane, which Mr. Sperry has been personally demonstrating in flights during the past month. One of his recent exploits was to land the Army Messenger plane, equipped with conventional wheel landing gear, on the steps of the Capitol at Washington in a demonstration of its low landing speed and ability to get in and out of tight places.

CHARLES HERBERT COLVIN

The work of Charles Herbert Colvin in the development and manufacture of aircraft instruments has received due recognition by the aircraft industry as well as by the Army, Navy and Air Mail Service.

The Pioneer Instrument Co., of which Mr. Colvin is general manager and member of the firm, was organized by him early in 1919 and is now the only American firm specializing exclusively in aircraft instruments, of which some of the best known are the Pioneer air speed indicator, aircraft compass, air distance recorder and speed and drift indicator.

Mr. Colvin graduated in 1914 from Stevens Institute of Technology with the degree of mechanical engineer, and his professional experience includes engineering work for the Curtiss companies in 1913; the Sperry Gyroscope Co. 1914-19, and Pioneer Instrument Co. since 1919 to date.

During 1916 he was engaged in flight tests of instruments, automatic controls and aerial torpedoes.

SAMUEL STEWART BRADLEY

After leaving the University of Michigan, Samuel Stewart Bradley was engaged for a time in civil engineering. In later years he gained a wide business experience in manufacturing and merchandising. Since Mr. Bradley's election as general manager of the Manufacturers' Aircraft Association in 1917 his thorough study and understanding of the many-sided American "aviation problem" has been recognized by his appointment by the president on the important American Aviation Commission to Europe in 1919. The report of this commission on aviation conditions abroad and its recommendations for the development and control of civil flying in the United States have formed the ground work for practically all proposed aircraft legislation in this country.

Mr. Bradley is a member of several sub-committees of the National Advisory Committee for Aeronautics. His tact, ability and forceful personality have been successfully applied during the past five years in developing a spirit of co-operation among the aircraft manufacturers, in representing the industry before the public and the government and in furthering the cause of civil aviation.

Grisard Field, Cincinnati

The airport of Cincinnati, Ohio, has recently been dedicated and named "Grisard Field." This was done with the permission of Major General Patrick, Chief of Air Service, and was named after John K. Grisard, the only Air Service Officer from Cincinnati who was killed in action during the War. The dedication took place on Aug. 5 at which time twenty-eight planes, including two mail planes, came to Cincinnati from various cities.

This field will be offered to the War Department in September, and the Cincinnati Chamber of Commerce will erect hangars and other equipment supplied by the government. The total cost of purchasing this field and equipping it will amount to about $30,000, which amount is being raised by public subscription, showing the great interest taken by the citizens of Cincinnati in this project.

5th N.A.A. District Convention

Fifth District of National Aero Association Organized by Convention at Cedar Point, Ohio

The 5th District Convention of the National Aeronautic Association was held on Aug. 25 and 26 at Cedar Point, Ohio, attended by delegates representing eighteen cities of the 5th District. This district comprises the states of Ohio, Indiana, Kentucky and West Virginia.

The convention opened Aug. 25 under the temporary chairmanship of O. O. McLeish, secretary of the Chamber of Commerce of Findlay, Ohio, who appointed the necessary committees. Rex L. Uden acted as secretary. On the following day Maj. Alfred W. Harris, Cleveland Chairman welcomed the delegates and pledged support of the forthcoming Second National Aero Congress at Detroit after Hugh W. Robinson, of the Executive Committee of the Detroit Aviation Society and a veteran seaplane pilot, had given details of the arrangements made for this congress.

Lt. Col. H. E. Hartney, Executive Secretary, National Aeronautic Association, outlined official standing of Air Boards and gave instructions to delegates how to form their own air Boards on returning to their cities.

Arthur Halsted, Secretary, Sectional Committee, Bureau of Standards, outlined the work which the Bureau and the Society of Automotive Engineers are doing in compiling the American Aeronautical Safety Code.

Necessity of a National Association

Howard E. Coffin emphasized the necessity of having a National Aeronautic Association from similar experiences in the automobile and Good Roads developments.

Omitting the technical side of the question which he said would take care of itself, the two main factors in holding up the development of aeronautics to-day are:

(a) Fear of riding in planes (coming from ignorance).

(b) Lack of legislation (federal, state and municipal).

He deplored the inactivity of Congress in passing laws already drafted, and predicted government subsidy or aid for the commercial airplane industry.

William B. Stout, Designer and Manufacturer, Detroit, then addressed the meeting reciting some of the problems confronting the aeronautical interests today.

Harvey Campbell, Secretary, Board of Commerce, Detroit, Mich. gave a brief outline of what Detroit was preparing to do for the National Aero Congress and deplored the adverse publicity methods of the press, suggesting the addition to all crash stories (in black type) "This is another example of the vital need of adequate Federal Legislation".

W. B. Wannamaker, Akron, Chairman of Resolutions Committee, submitted the five resolutions appended, all of which were passed unanimously.

Maj. W. F. Long, Chairman of Constitution and By-Law Committee reported several changes in Constitution as drafted, these to be further discussed and voted on at the next session of the Fifth Section, N.A.A. to be held at Detroit, Oct. 11.

It was unanimously decided to postpone election of permanent officers, and ask the temporary officers to continue to carry on until the next meeting in Detroit, Oct. 11, the day preceding the National Convention.

The flying boats "Buckeye" and "Wolverine" of the Aeromarine Airways, flying boats of Messrs. Long, of Lorain, and Audregg Bros. of Mansfield, Ohio, the "Great Lakes" cabin cruisers, of the Great Lakes Airways Co., Cleveland, Ohio, and "Waco" three passenger airplane of Weaver Aircraft of Medina, Ohio, flew in to Cedar Point during the convention.

Resolutions Passed by Fifth District Convention, National Aeronautic Association

Cedar Point, Ohio, Aug. 25 and 26, 1922

Resolution No. 1

WHEREAS, there is a great necessity for regulating and controlling all aeronautical activity in the United States, and,

WHEREAS, there is now pending in Congress a Bill known as the Wadsworth-Hicks Bill, which by the establishment of a Bureau of Civil Aeronautics, will effect such regulation and control,

THEREFORE, be it *Resolved* that the Convention, here assembled, do strongly urge the immediate passage of the Wadsworth-Hicks Bill, and of any such additional legislation as will further assist in such regulation and control.

Resolution No. 2.

WHEREAS, concerted effort is being made by many persons in Departments of the Government, Aeronautical Societies and in private life to formulate an Aeronautical Safety Code, and

WHEREAS, such a Code seems of great importance and of real necessity to the proper development of commercial flying in this country.

THEREFORE, be it *Resolved,* that this convention, here assembled, go on record as commending the splendid and unselfish efforts of all those who are assisting in this work and especially the Bureau of Standards and the Society of Automotive Engineers who are sponsoring it.

Resolution No. 3.

WHEREAS, an effort is now being made to establish a body known as the National Aeronautical Association of the United States, and

WHEREAS, the establishment of such an organization would greatly assist the rational development of civil aviation and so vitally strengthen our first line of national defense.

THEREFORE, be it *Resolved,* that this convention and the individual delegates thereto, heartily commend the work of the temporary officers and others who are promoting the organization and pledge them our hearty co-operation.

Resolution No. 4.

WHEREAS, the achievements of the Air Mail Service and more especially the recent records of performance have proven beyond doubt that the commercial carrying of mail and express matter in airplanes is a safe, sane, fast and dependable mode of transportation.

THEREFORE, be it *Resolved* that the Second Assistant Postmaster General, and the entire personnel of the Air Mail Service be tendered the congratulations of this convention, and our pledge of co-operation and support in carrying on this great pioneer work.

Resolution No. 5.

WHEREAS, the establishment of the airline between Cleveland and Detroit, by the Aeromarine Airways Co. was established by I. M. Uppercu, in the nature of a demonstration of the possibilities of commercial air travel.

THEREFORE, be it *Resolved,* that the congratulations of this convention be extended to Mr. Uppercu on the success of his undertaking, and an expression of hope that the line will be continued next year sent to him personally by the secretary.

Notice to Aviators

Canadian Seaplane Stations

Distinguishing flag—The distinguishing flag to be flown at the seaplane stations mentioned in Notice to Mariners 41 (3814) of 1921, and to be carried by the attending launches, is described as follows:

"Light blue, in the dexter canton the Union, and in the center of the fly of the flag, on a red shield edged with white, an albatross with wings extended over three maple leaves conjoined on one stem, proper."

The stations mentioned in the above Notice were Vancouver, B. C., Victoria Beach, Manitoba, and Dartmouth, N. S.

(N. A. 7, 1922.)

The Naples Aviation Meeting

Junkers Monoplane Carries Off Tyrrhenian Cup
Supermarine "Sea Lion II" Wins Schneider Cup

By Alighiero Baciocchi

The aviation meeting held at Naples under the auspices of H.M. the King of Italy, the Duke of Aosta, the ministers of war, navy, trade, foreign affairs, post & telegraphs, etc., was favored with perfect weather, excellent racing, splendid exhibitions of skilful piloting, large attendance, freedom from mishaps; in fact everything necessary to a thoroughly successful meeting except the presence of some competitors entered.

To describe in detail the eight days' aviation meeting would fill many pages of AVIATION, therefore we shall only deal with the general impressions and results rather than give a connected account of the events.

The meeting opened on Aug. 6 with a speed competition over a nautical mile, of which Signor Casimiro was the winner. The second event was a speed race run for the King's Cup presented by the Aero Club of Naples—a competition open to all commercial seaplanes carrying 200 kg. of freight. This race was run over thirteen circuits bounded by Naples, Capo Posillipo, Torre del Greco, Naples 400 km. The Italian pilot Pellegrini, flying the Savoia S13, won the Cup; the German Zimmermann on a Junker won second place, and Signor Vladimiro, the third one, with prizes. During the time that the machines were competing for the King's Cup a height contest took place with the following results: first, Sordi 5,400 m.; second, Casimiro 4,700 m.; third, Bonsembiante 4,500 m.

The following day four competitors started out in the contest for the Ancillotto Cup, presented by the "Tre-Venezie Aero Club," making the circuits laid down for the King's Cup.

The Savoia S51 racer (300 hp. Hispano-Suiza) which finished second in the Schneider Cup race

Sailor Sordi won the Cup, taking 1 h. 55 min. 41 4/5 sec. over the thirteen circuits; Fusco was second in 1 hr. 56 min. 32⅖ sec., both on a Machi M7. The two other competitors, Casimiro and Bonsembiante dropped out of the contest.

The chief event of this day, however, was the Great Cup of Tirreno open to all commercial seaplanes, whose landing speed does not exceed 80 km.p.h. and carrying 250 kg. of freight at least. This course was the circuit bounded by Naples, Punta Campanella, Capo Polinuro, Capo Vaticano, Milazzo, Palermo, Terracina, Capo Miseno, Naples. The total distance was 998,150 km. to be covered twice with three compulsory landings. The competitors were Herr Zimmerman and Eichler, each on a Junker BMW 185 hp., and Signori De Sio and Maddalena, each on a Savoia S16-ter. The Italian airmen had hard luck. Maddalena suffered from carburetor trouble and dropped out of the competition shortly after starting; De Sio was greatly slowed down by various engine troubles and finally was compelled to quit at Palermo. This left the field clear for the German pilots with the results as follows: first Zimmermann, time 17 hr. 8 min. 51⅕ sec.; second Eichler, time 17 hr. 38 min. 55 sec. The following day Zimmermann won the landing speed test and the Great Cup of Tirreno, including a cash prize of £150,000 was awarded to him. This award, however, is not yet definite because the German machines were not entered in the competition in accordance with the rules of the F.A.I. Moreover they have given rise to an inquiry by the Council of Ambassadors because of their having some features transgressing the letter of the Treaty of Versailles. Notwithstanding this, we must acknowledge the German pilots' skill and the quality of their machines.

In the Schneider Cup race (briefly reported in our last issue.—ED.), Italy did not meet with better luck either, for she managed to lose the first prize by 2 min. The results of this race of 400 km. were as follows: first, Captain Biard (England) on a Supermarine Napier Lion 450 hp. in 1 hr.

The Macchi M17 racer (250 hp. Isotta-Franschini) which finished third in the Schneider Cup race

34 min. 51 sec.; second, Passaleva (Italy) on a Savoia S51 Hispano-Suiza 300 hp. in 1 hr. 36 min. 54 sec.; third, Zannetti (Italy) on a Macchi M17 Isotta-Fraschini 250 hp. in 1 hr. 44 min. 7⅖ sec.; fourth, Corgnolino (Italy) on a Macchi M7 Isotta-Fraschini 250 hp. in 1 hr. 51 min. 25 sec.

This race was very interesting. Captain Biard attained an average speed of 234,516 km.p.h. and Passaleva 229,571 km.p.h. All pilots showed great skill in these performances, and the writer is convinced that Italian defeat in this race, as well as in the others, is due to the lack of good Italian engines. In fact, Italy is not advanced in creating improved engines for aviation purposes although she maintains a leading place in manufacturing improved machines. The Savoia S51, for example, illustrated herewith, is the latest creation of the Italian industry, and was first tested during the Schneider race. Had this machine been fitted with a more suitable and more powerful engine there is no doubt that it would have been more successful.

The Naples aviation meeting closed on Sunday, Aug. 12, with the Grand Prize of Naples and with some fine exhibitions. The Grand Prize of Naples consisted of three circuits of Naples, Copo Posillipo, Ischia, Capri, Torre Annunziata, Naples 300 km., and was open to all Italian commercial seaplanes carrying 200 kg. of freight at least. Five competitors participated in this contest whose results at the time of writing are unknown because the classification will be settled by a formula considering the commercial load of the machine, the weight of fuel consumed and the commercial speed taken to cover the course. There is every reason, however, to believe that Lieutenant Pellegrini won it on a Savoia S13.

"Who's Who in American Aeronautics"

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The biographical sketches of men who are prominent in American Aeronautics are printed periodically in AVIATION. The first series have been published in a more durable form, and revised issues will be published from time to time to take care of the frequent changes in station of Army and Navy officers, and such other changes as may occur. As errors and omissions are liable to occur in a compilation of this character, interested parties are requested to notify "Who's Who" Editor of the necessary corrections so the record may be kept up to date.

Leroy Randle Grumman

GRUMMAN, LEROY RANDLE, Commercial Aviation; born, Huntington, L. I., Jan. 4, 1895; son of George T. Grumman and Grace E. (Conklin) Grumman; married, Rose Marion Werther, March 19, 1921.

Educated: Huntington High School; Cornell University, degree of M.E., 1916; post-graduate course in aeronautical engineering at Massachusetts Institute of Technology 1918.

Professional: Substation Department, Long Island Railroad Co., 1912-1913; Engineering Department, New York Telephone Co., 1916-1917; Construction Corps, U. S. Navy (aviation) 1918-1920; Aeronautical Engineer, Loening Aeronautical Engineering Corp., 1920 to date.

Aeronautical Activities: Detailed instructor at U. S. Navy Engine School, Columbia University, 1917; transferred Naval Flying Corps; Ground school, M.I.T.; elementary flying, Naval Air Station, Miami, Fla.; advanced flying, Pensacola; Commissioned Ensign and received Naval Aviator Certificate, 1918; flight instructor in bombing squadron, Pensacola, Fla. 1918; course in Aeronautical Engineering at M.I.T. 1918; Project engineer and test pilot at Naval Aircraft Factory, Philadelphia; transferred to Construction Corps with rank of Lieutenant (j.g.) 1919; Inspector Loening Aeronautical Engineering Corp. 1920-1921; one of crew on Loening Air Yacht which broke World's Altitude Record for seaplanes on Aug. 16, 1921; Factory Manager, Loening Aeronautical Corp. 1922.

Flying Rating: Naval Aviator No. 1216.

War Service: Enlisted in Navy April 1917, released from active service Oct. 1920.

Member: Aero Club of America; Cornell Club of New York.

Present Occupation: Factory Manager, Loening Aeronautical Engineering Corp.

Address: 320-328 East 31st St., New York; home, 186 Elbertson St., Elmhurst, New York.

George Robert White

WHITE, GEORGE ROBERT, Real Estate; born, Brooklyn, N. Y., Nov. 11, 1893; son of George W. White and E. M. (Squier) White.

Educated: Public Schools; Polytechnic Prep. School, Brooklyn.

Aeronautical Activities: M. I. T. Ground School, June 16, 1917; passed "R.M.A." flying test, Mineola, L. I. Nov. 8, 1917; commissioned 1st Lieut. R.C.A.S. Dec. 10, 1917; assigned 213th Aero Sqd., Jan. 7, 1918; Gerstner Field, Lake Charles, April 8, 1918; Carlstrom Field, Arcadia, Fla.; U. S. Naval Air Station, San. Diego, Calif. special instruction seaplanes, passed Naval Aviators test Feb. 1920; honorably discharged U. S. Army.

Flying Rating: R.M.A. Oct. 6, 1917; Aviator's Certificate; Aero Club of America, Oct. 17, 1917.

War Service: 2nd F. A. N. Y. N. G. Mexican Border July 1916-Jan. 1917; Great War, April 1917-1920.

Member: Aero Club of America

Present Occupation: Real Estate Broker.

Address: 957 Bway., Brooklyn, N. Y.; home, 309- 13th St., Brooklyn, N. Y.

Clarence F. Adams

ADAMS, CLARENCE F., Gas Engineer; born, Rockford, Ohio, March 22, 1883; son of Henry Adams and Julia Adams; married, Marie Adams; Sept. 30, 1919.

Educated: Public Schools; College.

Aeronautical Activities: Flying experience on airplanes and balloons, Sept. 1910 to Sept. 1920; inventor of portable silicon gas generating unit for field balloon work; electrolytic gas cell for portable work and electrolytic gas cell for high amperage work; also of numerous other gas appliances, such as valves for helium cylinders and hydrogen gas, fire prevention apparatus.

Flying Rating: Balloon pilot No. 901, Oct. 27, 1920.

War Service: Served during the war in A.E.F. with 99th Aero Squadron as engineering officer.

Present Occupation: Experimental Gas Engineer, Air Service.

Address: McCook Field, Dayton, Ohio; home, Bellous Apartments, Dayton, Ohio.

Harry Cranston Durston

DURSTON, HARRY CRANSTON; Educational; born, Syracuse, N. Y., Oct. 16, 1881; son of Thomas Watson Durston and Alice (Edwards) Durston.

Educated: Syracuse City Grammar School; Syracuse High School; St. John's (Military) School, Manilus, N. Y. (Graduated (1899).

Professional: Secretary and Adjutant at St. John's (Military) School, since 1904.

Aeronautical Activities: Enlisted Jan. 29, 1918; commissioned 2d Lt. May 3, 1918; enlisted Branch, Personnel Section, O.D.M.A., assistant executive and executive officer; Honorable discharge, Jan. 28, 1919; commissioned 1st Lt. A.S. Sig. R.C. March 15, 1919.

Member: Sons of the American Revolution.

Present Occupation: Secretary and Adjutant at St. John's (Military) School.

Address: Manilus, N. Y.

Robert Coker

COKER, ROBERT, Major, Air Service; born, Salem, Mass., Jan. 19, 1885; son of John J. K. Coker and Emma R. (Trasher) Coker; married Alice Elizabeth Perley, June 3, 1909.

Educated: Public schools, Salem, Mass.; Brown University.

Professional: J. Brown & Sons, Salem, Mass.; Underwriters Salvage Co., N. Y. C.; Missouri Valley Bridge & Iron Co., Leavenworth, Kansas; New Orleans Adjustment Co.; Commissioned 2nd Lieut., 12th Infantry, Regular Army, Sept. 25, 1908; transferred to 3rd Infantry, April 2, 1912; promoted 1st Lieut., 7th Infantry, May 16, 1916; Captain, 60th Infantry, May 15, 1917; (organized 14th Machine Gun Battalion, Camp Green, Charlotte, N. C., November- December, 1917); Major, temporary, Signal Corps, Jan. 1918-Aug. 1919; transferred to Air Service July 1, 1920.

Aeronautical Activities: Detailed to Aeronautical Section, Signal Corps, Jan. 12, 1918; assisted in organization of 2nd, 3rd and 4th Regiments; motor mechanics, Air Service, Camp Hancock, Ga. and Camp Green, and commanding Air Service Motor Mechanics Casuals to include July 8, 1918; commanded 4th Regiment, Motor Mechanics, Air Service, from date of organization to April 15, 1919; served with regiment in A.E.F., Air Service Production Center No. 2 Romorantin, France, July 15, 1918, to April 15, 1919; District Manager, Material Disposal and Salvage Division, Air Service; New York and Boston Districts, Aug. 27, 1919-December 14, 1920; District manager, M.D.S. Division, Air Service, Buffalo, N. Y. December 15, 1920 to date; graduated Observer's School, Ross Field, Arcadia, Calif. 1921.

Flying Rating: Balloon Observer.

War Service: Service in Army during War.

Honors: Letter of commendation, Chief of Air Service for work in connection with Motor Mechanic Units, Aviation Section, Signal Corps.

Present Occupation: Major, Air Service.

Address: P. O. Box 56, Buffalo, N. Y.; home, 8 William Street, Salem, Mass.

Roemer Gilliam Robertson

ROBERTSON, ROEMER GILLIAM, Investment Securities; born, St. Louis, Mo., Dec. 27, 1896; son of J. Newton Robertson and Jessie Robertson.

Educated: Public schools of St. Thomas, Ontario; public schools and Collegiate Institute, Culver Naval Academy; Northwestern University, 1915-1917.

Professional: Northern States Power Co., April 1919 to date.

Aeronautical Activities: Royal Flying Corps, Toronto, 1917; Aerial Gunnery Camp Hicks; Castle Bromwich and Marske, England, 1918; France, June to Nov. 1918.

Flying Rating: International Pilots License, Scout Pilot (Acting Flight Commander).

War Service: July 1917 to Jan. 1919.

War Honors: Officially credited with the destruction of four German planes.

Member: Aero Club of Minneapolis.

Present Occupation: Investment Securities.

Address: 15 South 5th Street; home, 2217 Girard Ave., S. Minneapolis, Minn.

Horatio Barber

BARBER, HORATIO, Aeronautical Engineer; born, Croydon, England, Sept. 11, 1875; son of Charles Worthington Barber and Isabel (Loughborough) Barber; married, Bertha Louise Alexandra, 1914.

Educated: Oxford University.

Aeronautical Activities: Prior to 1908 travelled extensively throughout the world, was not engaged in any business or profession; 1908 began building and flying aircraft of his own design; the fourth or fifth Englishman to fly; designed, built and flew the first all-British airplane; during 1908 to 1912 designed, built and flew 28 various types of aircraft and taught numerous officers and others to fly; presented a squadron of four aircraft to the British Government, 1911; in the autumn of 1912 gave up active flying and became aeronautical consultant for various interests, including principal British manufacturers and Lloyd's etc.; prior to the War completed the official tests as an airship pilot; organized the works of the Aircraft Manufacturing Co. (which later became the largest aircraft constructors in England); visited Turkey during the Turco-Bulgarian war and had charge of their military airplanes; thus probably the first aviator to see active service; volunteered at the outbreak of the War in 1914 and served as an officer in the Royal Flying Corps until the Armistice; during the first part of the War organized and commanded the R.F.C. Aircraft Park (Repair Headquarters); two years officer in charge of Instruction at the Central Flying School, the senior instruction establishment of the Royal Air Force; invented and built the C.F.S. instructional machine gun apparatus whereby flying officers could attain efficiency in gunnery under conditions analagous to those in the air; after the War resumed occupation as Aeronautical Consultant; also organized Aviation Insurance Association of Lloyd's, of which he was chief underwriter; became an Associate Member of Lloyd's; member of Lloyd's Aviation Committee and Chairman of Lloyd's Aviation Technical committee; promoted and was instrumental in establishing Lloyd's register of aircraft and pilots; acts as an aeronautical consultant; represents Hartford Fire Insurance Co., Hartford Accident and Indemnity Co., and other Insurers; president of the Aviation Syndicate, Inc., and agent for various aviation interests.

Flying Rating: Royal Aero Club Pilots Certificate No. 30.

Honors: Mentioned for "Valuable services rendered to the country".

Books Written: "The Aeroplane Speaks", "Aerobatics", Airy Nothings", and various text books on navagational instruments; the instruction of instructors, etc.

Member: Fellow, Royal Aeronautical Society; Fellow, Royal Geographical Society; Fellow, Royal Colonial Institute; Member of Royal Societies Club; Royal Air Force Club; Founder member Royal Air Club; Riverside Yacht Club, Riverside, Conn.

Present Occupation: Aeronautical Consultant and Underwriter.

Address: 30 East 42nd St., New York City.

Leslie W. Mauldin

MAULDIN, LESLIE W., Commercial Aviator; born, San Saba, Texas, Nov. 23, 1898; son of James M. Mauldin and Alice May Mauldin.

Educated: Belton High School, Belton, Texas.

Professional: Automobile business 1914 to 1917; U. S. Army Air Service, Feb. 1918 to Jan. 13, 1919; automobile business Jan. 1919 to June 1919; commercial aviator.

Aeronautical Activities: Mechanical Dept., Waco Aviators School Factory 1917, student and instructor, engine dept.; Air Service Mechanic's School, Kelly Field, Texas, Feb. 1918-Jan. 13, 1919; Aviator Repair Depot, Dallas, Texas, June 1919-Sept. 1919; Maudlin Aircraft Co. to date.

Flying Rating: Pilot license, Aero Club of America, Nov. 1921.

War Service: U. S. Army Air Service, Feb. 1918-Jan. 1919.

Member: Aero Club of America; Flying Club of St. Louis.

Present Occupation: Vice president and general manager, Mauldin Aircraft Co.

Address: Grant Bldg., Fulton, Mo.; home, 1902 So. 9th St., Waco, Texas.

The Logic of a Separate Air Force

Among older officers of the Army and Navy, advocates of a separate Air Service have encountered very general opposition to their views based largely on tactical doctrines. These officers point out that unity of command is essential to success in war, and no one can question the truth of this; evils of divided leadership have indeed passed into a proverb. These officers assert further that true unity of command—good team work, in other words—cannot be secured in war unless habitually practiced in peace; nor can anyone object to this dictum. From these major premises, they proceed with the further assumption that in time of battle, the Air Service must strictly conform to the work of the ground or sea forces, and from this logically deduce that the Air Service must be in war and in peace a component part of the Army or Navy. In the latter assumption lies the error.

Observation vs. Air Warfare

It is human to formulate general principles from one's own experiences, no matter how limited they may be. The average Army or Navy officer in the World War, if he had any contact at all with the Air Service, saw nothing but the work of observation aviation. The number of officers of rank who had occasion to learn of the work of the Air Force—pursuit, bombardment, and attack aviation—is so small as to be negligible. Naval officers had practically no experience of air warfare except patrol. It is then, quite natural that officers of rank, whenever the word aviation comes under discussion, at once think of observation aviation, and mistakenly displacing the whole in their thoughts by a part arrive frequently at erroneous conclusions. In their minds aviation connotes observation.

Were it true that the airplane had no role other than observation, there would be little that could be said in favor of a separate Air Force. Unquestionably observation must work in the most intimate liaison with ground troops on the fleet, and quite properly the observation units should form a component part of the land or naval unit to which they belong.

But observation aviation is far from constituting the bulk of the work of an Air Force. On the contrary, by the end of the World War, it comprised less than a fourth of all the airplanes on the western front, the remainder consisting of the airplanes of offensive aviation. Moreover, there is every reason to believe that the relative strength of the latter will tend to increase rather than decrease. There is no desire, of course, to underrate the inestimable value of the observation plane. But from a purely aerial point of view, it is of far less importance than the remaining branches of an Air Force. On the principle of the greatest good to the greatest number, it is obvious that air policy should be determined not by the needs of observation but by the needs of the air force, wherever the two should be found conflicting.

Fighting over the Sea

Fighting over the sea is essentially the same as fighting over the land. The principles that govern it are derived from the air, which covers both alike. The same air force that today goes out to battle with hostile navies, tomorrow may attack his landing parties, and the next day join battle with the enemy land and air forces. In the first day it would cooperate strategically with the Navy, in the last with the Army; but throughout it would remain what it is in essence—neither Army nor Navy, but Air Force. Its liaison with both would be a very tenuous thing. It should be no part of Army or Navy, but should be a separate branch of the national defense, free to work out its own destiny, unhampered by the weight of older systems that utterly fail to answer its needs.

But what of observation aviation? Should it be a part of the Army or Navy, or should it too be brought into a separate Air Service? There is no question that the cooperation between observation aviation and the Army or Navy units it serves, must be intimate. But it must also keep in close liaison with the air force, if it is to operate safely and successfully. From the standpoint of purely tactical employment, there is much to be said in favor of either assignment. But there is still another point to be considered. Pilots and observers must be trained and airplanes designated, produced, and supplied. This work could unquestionably be better done by a separate Air Service. It is not necessary to destroy tactical unity; air organizations, on the contrary would be placed under the orders of commanders of Army and Navy units. But it is believed that a separate air force could supply to the Army and Navy units better trained and equipped for observation than these older arms could produce for themselves. As to the wisdom of uniting the air forces of the government into one group, few who know the needs of the air can doubt.

A Timber Survey for the Chicago "Tribune"

John M. Miller, pilot of the Chicago Tribune "Seagull," has sent his newspaper an interesting account of his trip to Shelter Bay, Quebec, made for the purpose of timber survey.

Leaving Port Washington, the Seagull flew via Albany and Burlington to Quebec where it was christened. The ship left Quebec for Franquelin, the first of the Tribune's timber properties on the North Shore of the Gulf of the St. Lawrence, 150 miles east of Quebec. The trip took 2 hr. 50 min. past the rugged banks of the river with only a fisherman's shanty at long intervals, and a few boats. The boats take twenty-four hours for the same trip. Leaving Franquelin with Mr. Renwick, manager of the property, the plane flew at a considerable altitude before going back over the "bush," as the lumbermen call the back country. At 5000 ft. the entire plant and most of the timber limits were easily seen. Continuing up the Franquelin River the various log booms, lakes, streams, and of most importance the varieties of trees, their number and size were clearly seen. The entire property was covered in 1½ hr. On landing Mr. Renwick stated that to cover the same territory and gain as much information would have required at least four months by the old methods, as there is no other way to survey this country and get the information we acquired. To assist him in determining the size of the lakes and area covered by the timber Renwick developed a range finder that proved very successful.

Similar work was carried on over the property at Shelter Bay with equal success. On one trip they flew 90 miles inland to get some very important information which was needed at once. It was fortunate that the plane was at hand. When Colonel McCormick, the owner of the property, came down for an inspection trip, he was taken over both properties on succeeding days. One trip especially to the Moisie River was of interest. The day was not suitable for forest survey, so Colonel McCormick decided on a fishing trip. It was 40 miles to the Moisie, which was done in as many minutes. Ten minutes after landing the fishing commenced, and in ten more the first salmon was hooked.

One emergency trip demonstrated an important feature of flying in rough country. The plane was at Pentecost, 20 miles up the river, when a wire was received that some medicine was needed. The Seagull left immediately, stopping at Shelter Bay for Dr. Henry, proceeding to Clarke City where medicine was procured and the doctor given an opportunity to consult with the local physician. The return trip was made after a stay of about an hour. The doctor gave his patient immediate treatment which proved effective.

The plane has been moored out wherever it happened to be and has been hauled out only twice.

WAR DEPARTMENT

SEPTEMBER

Sept. 19—TRAILERS - Jeffersonville, Ind., Auction. For catalog write Motor Transport Division, Office Q. M. G., Washington, D. C.; or C. O., Q. M. Depot, Jeffersonville, Ind.

Sept. 19—ORDNANCE MATERIAL, Frankford, Pa., Auction. For catalog write C.O. Frankford Arsenal, Philadelphia, Pa.

Sept. 20—ORDNANCE MATERIAL, Tullytown, Pa., Auction. For catalog write to address above.

Sept. 21—ORDNANCE MATERIAL, Morgan, N. J., Auction. For catalog write to address above.

Sept. 21—Q. M. SUPPLIES — Omaha, Neb., Auction. For catalog write Q. M. S. O., 1819 W. Pershing Rd., Chicago, Ill.

Sept. 22—AIR SERVICE EQUIPMENT — Houston, Tex., Auction. For catalog write C. O., Aviation Gen'l. Supply Depot, Houston, Tex.

Sept. 25—ORDNANCE MATERIAL— Aberdeen, Md., Auction. For catalog write C. O., Aberdeen Proving Grounds, Aberdeen, Md.

Sept. 26—Q. M. SUPPLIES — New Orleans, La., Auction. For catalog write C.O., Q.M. Surplus Property Depot, Atlanta, Ga.

Sept. 27—ORDNANCE MATERIAL—Watervliet, N. Y., Auction. For catalog write C.O., Watervliet Arsenal, Watervliet, N. Y.

Sept. 28—Q. M. SUPPLIES — Camp Devens, Mass., Auction. For catalog write C. O., Boston Gen'l. Intermed. Depot, Boston, Mass.

Sept. 29—Q. M. SUPPLIES — Norfolk, Va., Auction. For catalog write Q. M. S. O., 1st. Ave. & 59th, St., Brooklyn, N. Y.

SEND FOR CATALOG

SELLING PROGRAM

OCTOBER

Oct. 3—Q. M. SUPPLIES — Camp McClellan, Ala., Auction. For catalog write C.O., Q. M. Surplus Property Depot, Atlanta, Ga.

Oct. 4—HARNESS— Jeffersonville, Ind., Auction. For catalog write C. O., Q. M. Gen'l. Supply Depot, Jeffersonville, Ind.

Oct. 4, 5, 6,—ORDNANCE MATERIAL — Erie Howitzer Plant, Pa., Auction. For catalog write C. O., Frankford Arsenal, Philadelphia, Pa.

Oct. 5, 6,—Q. M. SUPPLIES — Camp Knox, Ky., Auction. For catalog write Q. M. S. O., 1819 W. Pershing Rd., Chicago, Ill.

*Oct. 10—MEDICAL SUPPLIES —New York City, Auction. For catalog write Surplus Property Sect., Office Surgeon General, Wash., D. C.

Oct. 10—AIR SERVICE EQUIPMENT—Dorr Field, Fla., Auction. For catalog write Commanding Officer, Dorr Field, Fla.

Oct. 11, 12—AIR SERVICE EQUIPMENT— Carlstrom Field, Fla., Auction. For catalog write Commanding Officer, Carlstrom Field, Fla.

Oct. 17—Q. M. SUPPLIES — Camp Dix, N. J., Auction. For catalog write Q. M. S. O., 1st. Ave. & 59th. St., Brooklyn, N. Y.

Oct. 24—AIR SERVICE EQUIPMENT— Montgomery, Ala., Auction. For catalog write C. O., Air Reserve Depot, Montgomery, Ala.

*Oct. 27—MEDICAL SUPPLIES —Wash., D. C., Auction. For catalog write Surplus Property Sect., Office Surgeon General, Wash., D. C.

Oct. 30—AIR SERVICE EQUIPMENT — Richmond, Va., Auction. For catalog write C. O., Air Reserve Depot, Richmond, Va.

*Sales dates indicated by asterisk are as yet only tentative.

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ARTMENT

Sailplanes and Soaring Flight

Editor of AVIATION:—

I was very glad to see in your magazine the description of the Hannover Glider.

The author of the original article in the *Zeitschrift fuer Flugtechnik*, W. Blume, is an excellent engineer and wonderful pilot, but his article lacks clearness in several points; in parts it is impossible for even a German to understand.

In your article: "Description of the Hannover Glider," in the Aug. 7 issue of your magazine, a few misinterpretations seem to have occurred. May I be permitted to offer some corrections.

The surprisingly high quality of the aerodynamical properties of this glider was not obtained by a particularly suitable *form* of the body. I had developed the form of the body principally from the constructional standpoint. It has, for instance, not only a rectangular section, but also a rather pronounced corner on its under side, comparable to the step of a float. We had a competitive test between this odd shaped body and a real "Streamline" body, with round section very appealing to the eye. The tests were made with a large model, 1/10 size, in which all drag producing parts were taken into consideration: Tail surfaces, tail skid, pilot's head. The foot balls only were neglected. The air speed of the wind tunnel was about three times the actual gliding speed. The scale effect can, therefore, almost be neglected and I believe that the results of this test are reliable, not to speak of the usual thoroughness of Dr. Prandtl's institute.

The results were remarkable: The odd shaped body was slightly superior to the streamlined body. At large angles of incidence the model with this body had a higher lift and a better lift/drift ratio than the model with the streamlined body. It was even better than the bare wing.

This does not mean, of course, that a body of primitive form has less resistance than a well streamlined body. It shows only, that I had found a particularly suitable arrangement for the body where it had no detrimental influence on the wing.

The particular merit of this glider is neither its good L/D, which is equal to 16, nor its high maximum lift, which is C_a = 165 per cent, or in American units: $K_y = 0.0042$. To obtain a low rate of descent it is necessary to have both of these factors at the same time, at the same angle of incidence. The characteristic factor which determines the rate of descent is:

In (German) absolute units $\dfrac{C^3_a}{C^2_w}$ or

In (American) $\dfrac{\text{lb.}}{\text{sq. ft.}} \times \left(\dfrac{\text{Hour}}{\text{Miles}}\right)^2$ units: $\left(\dfrac{L}{D}\right)^3 \times K_y$

I developed for my glider a section, which has not only a very high maximum lift, but also a section drag for high lift lower than any other section so far tested, and obtained thereby a value:

$$\frac{C^3_a}{C^3_w} = 305 \qquad \text{or}$$

$$\left(\frac{L}{D}\right)^3 \times K_y = 0.78$$

The Rhoen mountains are very different from the average flying field. The glider must be handled, started and landed on 20 per cent slopes, in fields covered with stones, fences and bushes, and sometimes in treacherous winds. It was, therefore, necessary to design the glider not only for a high magnitude of forces, but also for forces of very different kinds. Such cases had to be considered as hitting the ground or a fence pole with the wing tip, the nose, the elevator, or even the case of completely turning over. This precaution proved to be necessary, for in one of the first flights a start failed: The plane touched the ground first with one wing tip then with the nose of the body. The damages were local only and could be repaired within a couple of days.

It is difficult to understand what the factor of safety 2.5 means, which is mentioned in connection with the plywood cover of the wing, and I wish to explain it:

It will be remembered that the wing has only one spar, located one third of the chord behind the leading edge, at the same place that the section has its maximum thickness. This spar is very light and as stiff against bending as desirable, but it lacks, naturally, any stiffness against torque. This stiffness is obtained by the plywood cover. The greatest torque occurs at a nearly vertical dive, and it was easy to determine its magnitude from the model test of the bare wing. We made a full size model of the wing structure, applied to it a load producing a similar torque and shear, and found that the structure would withstand 2.5 times the worst possible condition of a nearly vertical dive.

It may seem strange that the wing is assembled to the body by "Two fittings mounted on the main ribs." This is, really not the case. Two powerful bulkheads, shaped like a rib, form a connection between the main spar and the body. While the center fitting carries the lift into the body, these bulkheads carry the torque.

GEORG MADELUNG

* * *

Editor, AVIATION

In your July 31 number you printed a very good article by J. W. Miller on Soaring Flight. Mr. Miller's article really was a masterful exposition of the principles of soaring flight but I was very much disappointed in his concluding paragraph in which he stated that long continued soaring flight with the wind at one's back is very difficult but not impossible.

There should be little, if any, difference. In his method of soaring he depends upon the internal working of the wind to produce the effect of passing alternately through still and moving bodies of air and the latter moving toward him. He glides through a still body of air and upon entering the moving body, his increased relative speed permits him to increase his angle of incidence and climb a bit when he again glides until he enters another moving body and repeats the process.

That is O. K. but he assumes that these puffs are all running in one direction which is all wrong. Any one who has been up, especially on a puffy day has felt blasts of air coming in first on one side of the ship and then on the other as it passes through different swirls of air. This shows that the wind is not just following along in puffs but is swirling about in all directions as it follows the general direction.

These swirls, then, will produce the same effect as described by Mr. Miller whether going against the wind, with it or across it. This should explain how the albatros as Mr. Miller mentions can follow a ship at sea for days soaring almost exclusively. The ships crossing the ocean do not all have direct head winds.

W. W. MEYER.

Pressure Distribution over the Horizontal Tail Surfaces of an Airplane, III

N.A.C.A. Report No. 148

This report by F. H. Norton and W. G. Brown deals with the distribution of pressure during accelerated flight of the full-sized airplane, for the purpose of determining the magnitude of the tail and fuselage stresses in stunting.

As the pressures to be measured in accelerated flight change in value with great rapidity, it was found that the liquid manometer used in the first part of this investigation would not be at all suitable under these conditions; so it was necessary to design and construct a new manometer containing a large number of recording diaphragm gages for these measurements. Sixty openings on the tail surfaces were connected to this manometer and continuous records of pressures for each pair of holes were taken during various maneuvers. There were also recorded, simultaneously with the pressures, the normal acceleration at the center of gravity and the angular position of all the controls.

The present investigation consisted in measuring on a standard rigged JN4H airplane the distribution of pressure over the whole of the horizontal tail surfaces while the airplane was being put through maneuvers as violently as it was thought safe, including spinning and pulling out of dives.

Army and Navy Entrants in Detroit Races

The Chief of Air Service has approved the list of Army Air Service pilots and alternates who are to participate in the National Airplane Races at Mt. Clemens, Mich., from Oct. 7 to 14 next.

The Army pilots and alternates, and the machines they are to fly, are as follows:

Type	Pilot	Alternate
EVENT NO. 2. LARGE CAPACITY MULTI-MOTORED AIRPLANES		
L.W.F. "Owl"	Lt. Ernest E. Harmon	Lt. Leslie P. Arnold
Martin Bomber	Capt. W. R. Lawson	Lt. Raymond E. Davis
" "	Lt. Chas. M. Cummings	Lt. Levi L. Berry
" "	Lt. Gerald E. Ballard	Lt. Chas. B. Austin
" "	Lt. Philip Melville	Maj. John H. Pirie
Martin Transport	Lt. Erik H. Nelson	
EVENT NO. 3. LIGHT COMMERCIAL AIRPLANES		
Fokker Transport	Lt.O. G. Kelly	Lt. R. S. Worthington
DH4B	Lt. Harold R. Harris	Maj. Fred H. Coleman
EVENT NO. 4. OBSERVATION TYPE, 2-PASSENGER AIRPLANES		
DH4B	Lt. Benj. R. Morton	Lt. Frank M. Paul
"	Lt. James D. Givens	Capt. Ernest Clark
"	Lt. Warren R. Carter	Lt. Edwin B. Robzien
"	Maj. Follett Bradley	Maj. F. L. Martin
LePere	Lt. T. K. Koenig	Lt. John W. Monahan
"	Lt. Wm. L. Boyd	Lt. Geo. W. Goddard
XB1A	Lt. Dale V. Gaffney	Lt. Delmar H. Dunton
"	Capt. Lloyd L. Harvey	Lt. Howard K. Ramey
EVENT NO. 5. HIGH SPEED AIRPLANES (PULITZER RACE)		
VCP-1-600 hp.	Lt. C. C. Moseley	Lt. L. Wade
Curtiss CD12 375 hp.	Lt. R. L. Maughan	Lt. Bushrod Hoppin
" " "	Lt. L. J. Maitland	Lt. C. V. Haynes
Loening, 600 hp.	Lt. E. C. Whitehead	Lt. G. P. Tourtellot
" "	Lt. L. D. Schulze	Lt. J. T. Hutchison
Thos. Morse, 600 hp.	Capt. F. O. D. Hunter	Lt. C. E. Crumrine
" "	Lt. C. L. Bissell	Lt. T. K. Matthews
Sperry, 350 hp.	Lt. E. H. Barksdale	Lt. G. C. McDonald
" "	Capt. St. C. Streett	Lt. V. S. Miner
" "	*Lt. F. B. Johnson	Lt. K. N. Walker
MB3	Capt. Burt E. Skeel	Capt. Albert M. Guidera
"	Lt. Benj. K. McBride	Lt. Walter H. Reid
"	Capt. H. M. Elmendorf	Capt. Vincent B. Dixon
"	Lt. Donald F. Stace	Lt. Roy B. Mosher
"	Capt. Oliver W.Broberg	Lt. Hobert R. Yeager
"	Lt. James D. Summers	Lt. Roy W. Camblin

(*) Seaplane

A training camp for naval aviators who are to represent the Navy in the coming aerial races to be held in Detroit Oct. 7 to 14, has been established at the Naval Air Station, Anacostia, and within the past two weeks the entire team has been assembled here for an intensive course of practice flights to fit them for the coming contest.

The Navy team is under the command and direction of Lieut. Comdr. Mark A. Mitscher, U.S.N., and is composed of aviators who have been selected especially for their ability to fly the fast types of racing planes that are to compete in Detroit. The daily practice flights engaged in represent to a degree the conditions that are to maintain in the forthcoming contest and the skill that will be the determining factor in the air races is being developed to a high point by the Navy pilots. Those who will represent the Navy are:

Lieut. Frank C. Fechteler, of California; Lieut. Harold J. Brow, of Providence, R. I.; Lieut. A. W. Gorton, of Pawtucket, R. I.; Lieut. William K. Patterson, of Harrisburg, Penna.; Lieut. David Rittenhouse, of St. Paul, Minn.; Lieut. Rutledge Irvine, of Brooklyn, N. Y.; Lieut. H. A. Elliott, of Sidney, Ohio; Lieut. (j.g.) Steven W. Callaway, of California; Ens. Alford J. Williams, of New York City; Capt. Francis P. Muleahy, U.S.M.C., of Rochester, N. Y.; Lieut. Lawson H. Sanderson, U.S.M.C., of Shelton, Wash

The two races in the Detroit Aerial Meet in which the Navy will be represented are the Curtiss Marine Flying Trophy event and the Pulitzer Race, the former being a class for seaplanes and the latter for land planes. In the training now in progress the pilots are engaged in practicing landings and difficult turns on the water and in low flying and hair pin turns over the land course. The Pulitzer Race which will be around a closed circuit consisting of three legs will be a severe test of the ability of pilots to make turns at high speed over the closed course. This race was won last year by the Curtiss Navy Racer which established a world's record for a closed circuit speed run. This plane will again appear in the field this year and will be flown by either Lieutenant Fechteler or Lieutenant Brow.

Chicago Meet Next Summer

AVIATION is in receipt of the following communication from the Chicago Aeronautical Bureau, Inc.:

We regret to be compelled to advise you that causes beyond our control have made it necessary to postpone until next year the Air Program originally scheduled to be held in Chicago from Aug. 4 to 13, inclusive, under the auspices of the Chicago Aeronautical Bureau.

Believing you will be interested in knowing the reasons for this postponement we wish to explain that formal permit had been issued by the South Park Commissioners for the use of Grant Park on the dates mentioned. Finding that all the necessary arrangements could not be completed in time, either by ourselves or by many intending contestants and exhibitors, we decided to postpone the Meet until the first part of September.

However, when we applied for permit for the new dates the South Park Commissioners were unable to comply, for the reason that certain important improvements in Grant Park which had temporarly been held in abeyance for us could not be longer delayed, and this work made it impossible for a considerable time to use the space set aside for a landing field.

As we consider Grant Park the only place in or near Chicago where such a Meet could be successfully held, we were reluctantly compelled to abandon our plans until next year. The Chicago Aeronautical Bureau will commence preparations in February, 1923, for the holding of its Air Pageant during the first two weeks in August. With plenty of time and money at our disposal we expect to make it the greatest affair of its kind ever held. It will include not only a large number of flying events with liberal cash prizes, for the various classes of planes, but also an exhibition of aircraft and aircraft parts and material, as well as an Aeronautical Congress with addresses by the country's foremost authorities on the various phases of aeronautics.

In the meantime, the Chicago Aeronautical Bureau (incorporated not for profit) will actively continue its work in educating the public to the commercial possibilities of aircraft and in advancing Chicago's aeronautical interests in every way.

Air Mail Radio Experiments

Constant experiments by the radio service of the Post Office Department to attempt to limit static interference in receiving are beginning to secure results. These experiments seem to indicate that the day of the aerial antennae for receiving is over.

The following description of the tests conducted has been made by James C. Edgerton, Superintendent of the radio section:

The Air Mail radio section has eliminated the use of regular transmitting antennae for receiving purposes altogether, as it has been found that the surveyor static conditions prevalent especially in the middle west made receiving impossible. Very good receiving conditions with favorable signal static radio has been obtained however, through the use of three different methods of receiving, which are selected to conform to local conditions. There are large verticle outside multiple turn loops, and secondly underground horizontal buried loops and lastly underground antennaes.

The best results are obtained with the underground antennae when it can be laid in damp soil with a straight away of 1000 ft. The horizontal buried loop is more or less of a new departure and has been very successful when well insulated and buried in water or very damp earth.

In actual use well constructed underground antennae such as is used in the majority of the fifteen stations in the air mail circuit the results are rather unusual. Communication has been carried on in the Middle West between air mail stations when lightening was actually striking near by. As a matter of fact it has been possible to carry on communication when the currents induced in the antennae from near by lightening discharges blew out the arc. Receiving on an ordinary antennae would have, of course, been impossible long before the storm reached the vicinity.

Aviation Progress in Vermont

A striking example of the use of airplanes for commercial purposes was demonstrated before over 6000 people at the recent meet held in Brattleboro, Vt., under the auspices of the Brattleboro Outing Club, when Lieut. Casey Jones of the Curtiss Co. at Mineola, L. I., flew to Brattleboro with a part needed for the repair of another plane and arrived in time to have the broken part replaced and permit the plane to take part in the scheduled events.

Lieut. Jones made the take-off at Mineola at 7.30 in the morning of Aug. 18, the day of the meet at Brattleboro and including a stop of one hour at Hartford, Conn., he arrived at the aviation field in Brattleboro at 10.20, 10 minutes before the events were scheduled to begin. The damage to the broken landing gear of the sister plane was repaired in a short time, and half an hour later, it was in the air taking part in a bomb dropping contest.

The repaired plane, which was a Curtiss Oriole, had arrived in Brattleboro on the afternoon of the 17th, and when alighting on the field after making a passenger flight, the left forward strut was broken, when the Oriole struck a hummock in the field. Late in the afternoon, word was sent to the Curtiss Company, who were informed of the break, and at 7.30 the following morning, a new left forward strut had been secured and was taken by Lieut. Jones in a sister Oriole to Brattleboro.

There were seven planes that participated in the Brattleboro meet, which was held for the purpose of demonstrating the safety of flying, to increase the interest in aviation in Vermont and to dedicate a new landing field which Brattleboro has provided. These planes were as follows:

Two Curtiss Orioles, Curtiss C6 6 cyl., 150 hp., piloted by Benjamin Hughes of Garden City, L. I., and Lieut. Casey Jones of Mineola, L. I., respectively; Curtiss plane JN4D, 8 cyl., 90 hp., piloted by Capt. H. E. Stickney of Bellows Falls, Vt.; Standard Jl plane, Hispano-Suiza 8 cyl., 150 hp., Lieut. John B. Wood of Randolph, Vt.; Army De Haviland plane, Liberty motor, 12 cyl., 400 hp., piloted by Maj. E. B. Lyon of Framingham, Mass.; Curtiss Army plane, 150 hp. piloted by Lieut. H. Moffatt of Framingham, Mass.; Standard Jl plane, 8 cyl., 150 hp., piloted by Lieut. H. P. Lott of Randolph, Vt. An eighth plane, a British "Avro" with a LeRhone 110 hp. rotary motor, piloted by H. F. Banks of Framingham, Mass., did not arrive until 5 o'clock of the afternoon of the meet and was too late to participate in any of the events.

The meet was under the direct supervision of Fred H. Harris, president of the Brattleboro Outing Club. The exercises commenced at ten o'clock when President Harris invited the huge throng of people to the center of the field where the dedication of the field was to take place.

Old Glory was raised by Miss Evelyn Harris, sister of President Harris, and who was later fatally burned in an airplane accident. Following the flag-raising, President Harris introduced Governor James Hartness of Springfield, Vt., who made the dedication address. In his remarks, Governor Hartness stated that he was proud of the manner in which Brattleboro took hold of the aviation movement. He said the dedication of the field meant that a powerful step in the advancement of aviation was being taken because the establishment of a good landing field is very important as many of the accidents due to airplanes have been caused by poor landing fields.

Governor Hartness himself is an aviation enthusiast. He is president of the Aero Club of Vermont and was one of the first aviators to receive a license to fly. In the early days of aviation, he flew one of the old model planes when the pilot sat out near the front with nothing under him but a few bamboo rods and the air.

The first event on the day's program was a flight in battle formation. Three planes took part in this event, piloted by Capt. Stickney, Lieut. Lott and Lieut. Casey Jones. The machines rose from the field circled around the field into position and finally grouped themselves into battle formation and flew over the field several times. They were in the air ten minutes descending on the field at 11 o'clock.

The next event was a cross country race for a cash prize of $50; four planes participated in this event, three of which were the crafts which flew in battle formation and the fourth a Curtiss Oriole, piloted by Hughes. Seven passengers were taken on this flight which was to Bellows Falls, Vt., and return. Stickney's machine left the field at 11.50; Lieut. Lott left five minutes later and the two Orioles at 12.00 and 12.01. Jones was the winner. He made the 40-mile distance to Bellows Falls and return in 34 min. 56 sec. Lott was second crossing the line six feet back of Jones; Hughes was third, 25 feet behind and Stickney landed on the course, 100 feet back of Jones.

The two Army planes did not participate in any of the events on account of a ruling made by the Secretary of War. However, they went into the air during the cross country race and gave exhibition flying for the benefit of the huge crowds.

The next event was a bomb dropping contest, which from a popular standpoint, was perhaps the most interesting event of all. Four planes participated in this event, these being the ships that flew in the cross country race. The target was a white cloth 10 ft. square in the center of the field. Each plane dropped three bombs made of sand and white flour from a height of 500 ft.

Hughes in his Oriole was first in the contest but he did not drop his bombs until he was well over his mark. His shots went wild, one landing near the pylon at the southern end of the field, the second in the woods to the west and the third in the water south of the field.

Captain Stickney made the second attempt, one of his bombs landing 27 ft. from the target and the other two near the pylon.

Lieut. Lott dropped two bombs near the pylon and the third 150 ft. away from the mark.

Lieut. Jones dropped his first shot near the pylon; the second landed 19 ft. from the mark and the third 26 ft. away. His average was 22½ ft. and he was awarded the cash prize of $50. Lieut. Stickney who was second in the event, is the Vermont aviator who has a record of five German planes and one German balloon during his service with the Lafayette Escadrille during the World War.

The next two events were a landing on the mark contest and an acrobatic contest but these two events were not completed owing to an extremely unfortunate occurrence which ended the activities for the day. Pilot Hughes, with three passengers, had just taken off the field with the intention of entering the contest, when he failed to make altitude and his Oriole came in contact with the tip of an elm tree which switched his machine directly into three high tension wires carrying 10,000 volts of electricity. Pilot Hughes was nearly electrocuted in attempting to render aid, for the fallen wires charged the wires and metal parts of his plane and in getting hold of the wires holding the wings, he was painfully shocked.

Two passengers, Joseph Trahan of Brattleboro and his five year old son, Norman, died before assistance could be given them. Miss Harris, the other passenger, died from her injuries the following day.

New French Competition

One million one hundred francs (nominally $193,000) in prizes have been offered, chiefly by the French Government, for the grand prix of Paris, open to multi-motored commercial airplanes, to take place in September and October of next year over a distance of 1800 miles.

The course will be around Paris on a route formed by the five principal airdromes. Only airplanes with more than one motor, carrying at least two men and a half-ton load of freight, will be eligible.

The winner will be determined upon by points scored—400 being allowed for speed and 250 for safety. Among the tests imposed will be proof of the accessibility of the motors while in flight, when the mechanician will be required to replace two spark plugs on the same motor while in the air. Another will be starting the motor while in flight and a safety test will be to execute a series of maneuvers with only one motor running.

Several weeks will be given over to elimination and qualifying contests and the final prize competition is scheduled for Oct. 10 to 12. Speed tests will be flown over a thousand-mile circuit.

Air Service Purchases Fokker Planes

Through a contract entered into Aug. 18, between officials of the Army Air Service and Anthony H. G. Fokker, the noted airplane designer of Amsterdam, Holland, the United States Government will acquire three Fokker pursuit airplanes, single seated type, to be built around Curtiss D12 cylinder 375 hp. engines.

These planes will be used in experimental work at the Air Service Engineering Plant, McCook Field, Dayton, Ohio.

Should Mr. Fokker's products measure up to the specified requirements the Air Service, under the terms of this contract, may obtain plans, specifications, blue-prints and such complete data from Mr. Fokker as will permit of the manufacture of additional planes of this type in this country by the American aeronautical industry.

Under the terms of this contract these planes will be required to have a speed of 140 m.p.h. and be able to carry a useful load of 905 lb. Any performance below the minimum requirements of 135 m.p.h. at 15,000 ft. altitude, a climb to 20,000 ft. in twenty-eight minutes and a service ceiling of 21,000 ft. will constitute sufficient cause for rejection. Should the planes exceed 140 m.p.h., Mr. Fokker will be given a bonus for each mile in excess thereof up to a certain limit. Conversely, he will be penalized for each mile below this figure down to a minimum limit of 135 m.p.h.

Air Mail Pilots of America

This association, whose membership is composed of approximately 90 per cent of the pilots flying the Air Mail between New York and San Francisco, came into existence in November, 1920, with Pilot J. T. Christensen, who was later killed in a crash at Cleveland, as its first president. Its motto: "For the benefit of the Air Mail and the advancement of Aviation," is indicative of the work it is trying to do.

The flying time of the members of this association will average about two thousand hours each. By far the larger portion of this time of course has been put in in cross-country flights. It would hardly be possible to assemble an equal number of pilots in the United States today, who have had such extensive experience in cross-country flying under adverse weather conditions. While these men may be considered specialists in cross-country flying, it has been demonstrated at some recent aviation meets that they have not entirely forgotten acrobatics and formation flying which was so much in demand during the war. To mention some of the more recent achievements, Pilots E. H. Lee, W. C. Hopson, H. G. Smith and W. A. Yackey were among those who carried away honors at the Monmouth and Tarkio meets.

The remarkable record of the Air Mail Service for the past fourteen months is due largely to the efforts of three men, C. F. Egge, when he was promoted to the office of General Superintendent was quick to follow out the idea of acquiring excellent standard equipment throughout the service which Superintendent J. E. Whitbeck of the Eastern Division had already demonstrated was necessary for continuous operation. Accordingly he placed in charge of the General Repair Depot at Chicago Pilot R. G. Page who has very ably carried out his ideas. Mr. Page has turned out a large amount of equipment which, for its type, is second to none. This excellent equipment combined with the added experience of the mechanical force and pilots have all contributed to this unusual record.

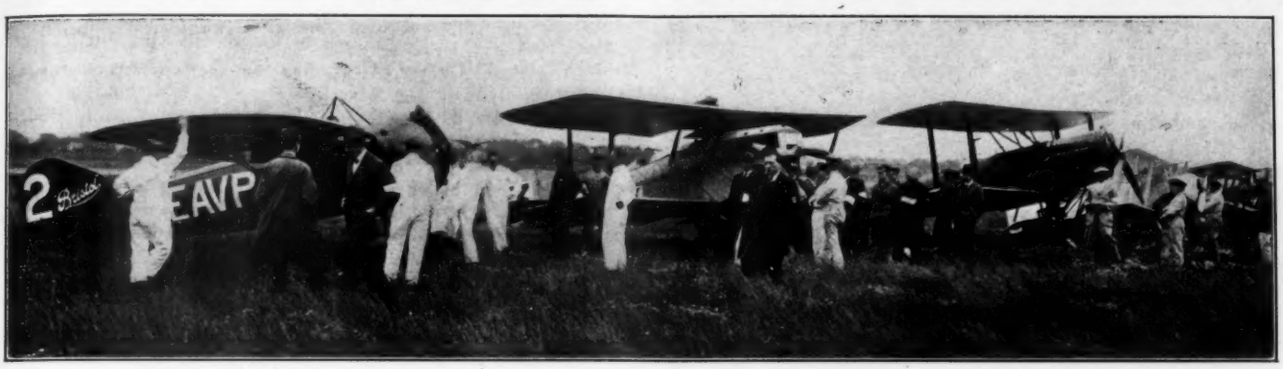
New Moisture-Proofing of Wood

That some asphalt and pitch paints, because of their ease of application and moisture-resistant quality, are nearly as efficient as the aluminum-leaf finish now used on airplane propellers, is the evidence obtained by the United States Forest Service in a series of tests which it conducted during the past year in cooperation with the Navy Department at the Forest Products Laboratory, Madison, Wis.

The Navy Department is seeking a moisture-resistant coating of easy application with which to coat seaplanes made of many small wooden parts glued together. On account of the variations in stress resulting from the severe extremes of moisture which a seaplane encounters, it is important to protect the wood with a coating through which the moisture will not penetrate. Otherwise the wood and joints may be weakened. Few of the many coating materials already tested have given adequate protection even though several coats were applied. The aluminum-leaf used on airplane propellers is the best moisture-proof coating known, but it is not suitable to apply to the many small parts which make up the wings and hulls of flying boats.

Some of the asphalt and pitch paints tested were very moisture-resistant, and others were ineffective. Further investigation is to be made to determine the relative value of the different kinds available, and the Forest Products Laboratory, invites the industries concerned to contribute information, suggestions, and samples of paint for use in this study.

Where other colors than black are desired, asphalt and pitch paints have been found objectionable, since it is difficult to cover them with paints of a lighter color. It is hoped that this defect can be overcome by developing different methods of applying the final coating.



Some of the entrants in the London Aerial Derby—L. to R. : Bristol 100 hp. "Lucifer" (winner of Handicap Race); Martinsyde F6, 200 hp. "Viper"; DH37, 275 hp. "Falcon"

Bamel Wins London Derby

This year's London Aerial Derby, which was held on Aug. 7 at Croydon airdrome, was won by Pilot J. H. James on a Gloucestershire "Bamel" (450 hp. Napier "Lion"), who covered the two laps of 99 miles each in 1 hr. 6 min. 48⅘ sec., or at a speed of 177.85 m.p.h. R. A. de Haig on a Bristol "Bullet" (400 hp. "Jupiter") finished second in 1 hr. 21 min. 57 sec., and A. S. Butler on a DH37 (275 hp. Rolls-Royce "Falcon") was third.

The Handicap Race which was run at the same time as the Aerial Derby was won by L. L. Carter on a Bristol monoplane (100 hp. "Lucifer") with a handicap allowance of 47 min. 9 sec. as against one of 3 min. 29 sec. for the "Bamel" which was the fastest of the lot, and a handicap allowance of 1 hr. 22 min. 34 sec. for the Avro Baby (35 hp. Green).

ARMY AND NAVY AIR NEWS

Air Service

Retirements and Discharges—A War Department circular under Aug. 4 directs the attention of all officers to the fact that the reduction in the number of officers required by the act of Congress approved June 30, 1922, is to be accomplished by retirement and discharge of officers who *for any reason* are recommended therefor by the board of general officers as being in excess of the new authorized numbers.

Neither the law nor regulations made thereunder limit the board in the reasons for its recommendations. From the magnitude of the reduction and from the fact that inefficient officers are eliminated under provisions of the Act of June 4, 1920, it is manifest that the reduction now being made cannot be based upon inefficiency. Officers whose services would gladly be continued if the law permitted must be dropped for any reason that indicates they are the most logical to be declared surplus in making a reduction that must be made. Among the factors to be considered are age, time yet to serve, the officer's desire for discontinuance of active service as evidenced by requests submitted and filed with their records, physical impairment, and similar factors which, in no way, reflect upon the officer's service or record.

Under the circumstances all retirements or discharges under the act of June 30, 1922, are viewed as equally honorable and as being due solely to meeting an existing situation requiring the loss from the active list of officers in excess of authorized numbers. In accordance with this view no differentiation will be made in orders as to the reasons for the board's recommendation and such reasons will not be stated in any case.

To conform to requests being received from officers who apply for retirement or discharge that they be given official notice of receipt and consideration of their applications, the War Department will, in each such case, cause the final notice of retirement or discharge to be accompanied by an official copy of the application which has been considered by the board of general officers.

* * *

Lieutenant Wilkins' Transcontinental Flight—Lieut. Paul C. Wilkins, Army Air Service, left Bolling Field, D. C., on Aug 18 on his flight across the continent. He expects to spend thirty days on his trip to Pacific Coast and return. The Chief of Air Service approved Lieut. Wilkins' application for this flight in view of the excellent work done by this officer in connection with investigation of landing field facilities in different sections of the United States for the Airways Section, Office Chief of Air Service. His trip westward will be via Dayton, Ohio; Scott Field, Ill.; Fort Riley, Kans.; North Platte, Neb.; Cheyenne, Wyo.; Salt Lake City, Utah; Elko, Nev.; Reno, Nev., and San Francisco. From North Platte to the Coast he will follow the Aerial Mail route, and the Post Office Department is co-operating with him in notifying stations ahead of his anticipated arrival.

On his return trip, Lieut. Wilkins will take the northern route, traveling along the Aerial Mail route to Salt Lake City and then proceeding northward to Casper and Sharon, Wyo.; Miles City, Mont.; Bismark and Fargo, N. D.; Minneapolis, Minn.; Chicago, Ill.; Dayton, Ohio, and back to Washington.

While on his aerial journey, Lieut. Wilkins will make a study of landing facilities enroute, with reference to terrain and servicing facilities for airplanes, especially while flying over the Northwestern section of the United States.

Lieut. Wilkins reached Cheyenne, Wyo., on Aug. 23, and left for Salt Lake City the following day.

Army Orders—Maj. Bert M. Atkinson, A. S., is directed to proceed from Mather Field to San Francisco, Cal., for examination by an Army retiring board.

Maj. Benjamin D. Foulois, A. S., has been relieved from duty as military attache to the American Legation at Denmark.

Maj. Harold Geiger, A. S., has been relieved from duty as military attache to the American Legation at Norway.

Capt. Albert D. Smith, A. S., directed to proceed from Mather Field to Letterman General Hospital, Presidio, San Francisco, Cal., for treatment.

An amended order directs Capt. Roland L. Davis, A. S., now on sick leave at Abingdon, Va., to report to Walter Reed General Hospital.

Previous order relating to First Lieut. Thomas L. Gilbert, A. S., is amended so as to direct him, upon the completion of his temporary duty in the Seventh Corps Area, to proceed to Langley Field, Hampton, Va.

Leave of absence for one month is granted First Lieut. Joseph W. Benson, A. S., upon completion of his duties at Brooks Field, Tex.

Maj. Guy L. Gearhart, A. S., now on duty at McCook Field, Ohio, will proceed to Washington, D. C., and report at Walter Reed General Hospital for observation and treatment.

Upon expiration of their leaves of absence the following second lieutenants assigned to the Air Service are detailed to the Primary Flying School, Brooks Field, San Antonio, Tex., for training: Edmund Clayton Lynch, Alfred August Kessler, Jr.; Mervin Eugene Gross, Francis Borgia Kane, Daniel Allen Terry, William Stevens Lawton, Benjamin Wiley Chidlaw, Howard Gillespie Davidson, Fred James Woods, Orval Ray Cook, James Wrathall Spry, Landon Carter Catlett, Jr., Townsend Griffiss, William Beck Goddard, Jr.

* * *

Enlisted Grades and Ratings in A. S.—Allotments of grades and specialist ratings for enlisted men of the Air Service, based upon the reduction of 125,000 men in the Regular Army, have been announced by the War Department as follows:

a. Grades:

First. Master sergeants	130
Second. Technical sergeants and first sergeants	170
Third. Staff sergeants	601
Fourth. Sergeants	574
Fifth. Corporals	622
Sixth. Privates, first class	1,983
Seventh. Privates	4,230
Flying cadets	190
Total	8,500

b. Specialist ratings (for privates, first class, and privates)—Classes:

Specialists, first class	152
Specialists, second class	292
Specialists, third class	242
Specialists, fourth class	182
Specialists, fifth class	376
Specialists, sixth class	1,336
Total	2,580

* * *

Nominations Sent to Senate—To be Major, A. S., by transfer, Maj. Karl Hartman Cormen; to be First Lieutenant, A. S., by transfer, James Edmund Parker; to be Second Lieutenant, A. S., by transfer, William Beck Goddard, 3rd.

Naval Aviation

Success of Davis-Douglas Torpedo Plane—Three countries are represented in torpedo-carrying airplanes to be seen at the naval air station at Anacostia, across the Potomac from the nation's capital.

There is the compact, neat-looking Liberty powered Davis-Douglas; the big hydro monoplane of Fokker with Liberty engine and the Blackburn "Swift" (Napier 400) a land-type torpedo craft.

Exhaustive tests just concluded at Anacostia by the Bureau of Aeronautics of the Navy Department have proven the superiority of the Davis-Douglas over similar types that have been under investigation and quantity production of this type of plane is now going ahead, to the end that aviation units operating with the fleet may soon have the best 'plane in existence for torpedo work.

The Davis-Douglas 'plane was built in Los Angeles for the Navy, and was tested on the west coast by a trial board before being brought to Washington for further tests. At the same time, other designs of 'planes were under investigation, and tests were conducted to determine their suitability as torpedo aircraft.

Eighteen of the new Davis-Douglas 'planes are being built by the Davis-Douglas Co. at Los Angeles, and six more of the planes are to be built at the Naval Aircraft Factory in Philadelphia. The Bureau of Naval Aeronautics will also call for bids on the manufacture of an additional quantity.

The new aircraft incorporates a number of advanced features in torpedo plane construction. In the tests conducted, the plane was equipped with twin pontoons for alighting on water, but it was also flown with land gear for alighting on the decks of ships or on land. The folding wing construction enables this machine to be stowed in a small space on shipboard, and it possesses a high degree of maneuverability. With a torpedo secured to the plane it was able to take off the water in thirty seconds.

The biplane wings are known as "semi-internally" braced with but one pair of struts on each side. This is made possible by the use of a new thick wing section which permits large wing beams. The Davis-Douglas plane has a factor of safety of five under maximum load conditions.

* * *

Fighting Plane Sqd. 1 Makes Gunnery Record—During the week of Aug. 18, it is believed that a new world's record for hits with a fixed machine gun has been established by pilots of Fighting Plane Squadron 1, of the Aircraft Squadrons, Pacific Fleet. These guns are of the Vickers type mounted on VE7SF fighting airplanes and synchronized to fire through the propeller. Such guns are aimed by maneuvering the airplane.

A part of the regular annual gunnery exercises of the Aircraft Squadrons consists of firing at a sleeve target towed by another airplane. The pilot thus must maneuver in the same manner as in actual combat, and attacks the sleeve as though it were another airplane. These practices are held by all Squadrons of the Aircraft Squadrons, Battle Fleet, at their temporary base at the Naval Air Station, San Diego, Calif.

In preliminary practice the pilots of Fighting Plane Squadron 1 studied and developed a method of attack which is often used in actual combat, i.e., to keep out of range and then dive below the target with speed and pulling the airplane up underneath it so that the guns bear. This method has an advantage in that the airplane "hangs" in the air under the target and that the rate of change of range is thus greatly reduced. In actual combat if the airplane is pulled up underneath the opposing airplane, the latters guns do not bear, and are valueless.

All pilots of Fighting Plane Squadron 1, were trained and practiced in this method of approach. Naturally as in actual warfare the time element as well as accuracy and the score or merit is based on hits per minute.

Unit 2 of Fighting Plane Squadron 1, carried out this practice in a phenomenal manner, displaying a skill and accuracy, and through supervision resulting in excellent functioning of material which it is believed has never before been equalled.

The merit obtained by the pilots was:

Lieut. S. T. Cuddihy, U.S.N.	—145 hits	in 27 sec.
Lieut. L. Hewitt, U.S.N.	—137 hits	in 18 sec.
Ens. W. B. Gwin, U.S.N.	— 87 hits	in 21 sec
Average	123 hits	in 22 sec.

Heretofore, 57 hits in two minutes was considered excellent shooting. From the above and after consulting the best information available, it is believed that this unit has established a world's record for shooting fixed guns at a moving target.

Marine Aviation

Demonstration of 4th Air Squadron—A demonstration of the work of the 4th Air Squadron, U.S.M.C., before a distinguished party of guests was held at Bowen Field, Port-au-Prince, R. H., during the early part of August and illustrated the important part that aviation has come to play in the work of policing the troubled parts of the Carribean.

The party in honor of whom the exhibition was given included the U. S. Commissioner to Haiti, the President of Haiti, and his cabinet, the Chief Justice, the Chief of the Gendarmerie d'Haiti, the Chief of the Engineers and Sanitary Service and the Mayor of Port-au-Prince.

The program included a formation flight of DH4B's, a demonstration of the use of the ambulance plane attached to the squadron, radio communication with plane in the air, practice bombing and gunnery flights, parachute jumping, and an exhibition of stunting and a "dog fight" between two JN planes.

The exhibition was staged in the presence of an audience of two thousand persons.

The airplane patrol established over the island republics by Marine Aviation has been the means of seeking out and checking incipient revolutionary movements in numberless instances in a manner that would have been well nigh impossible through the use of scouting units of infantry. As a means of comunication between widely separated posts throughout the island the aviation units have proved invaluable. And in addition to the military uses of the airplane the ambulance service established by air through the use of a specially equipped ambulance plane has brought to the service of outlying posts the last word in speedy medical assistance and has been the means of saving lives not only of members of the expeditionary forces but of any and all who might have need of medical assistance.

* * *

Marine Corps Orders—Capt. James T. Moore, Aug. 6. det. Marine Barracks Quantico, Va., to 4th Air Sqd., Haiti.

2nd Lieut. G. W. Kirkman—Orders modified. Authorized to proceed to Santo Domingo at own expense on aviation duty via Merchant steamer sailing New York about Aug. 19.

1st Lieut. Merrit A. Edson—Aug. 22, detached MB NAS Pensacola, Fla., to MB Quantico, Va., for aviation duty.

Coming Aeronautical Events

AMERICAN

Oct. 7 — Detroit Aerial Water Derby, Detroit. (Curtiss Marine Flying Trophy Competition.)

Oct. 12-14 — Detroit Aerial Derby, Detroit. (Pulitzer Trophy Race.)

FOREIGN

September—Grand Prize of Italy. (International Airplane Competition.) Milan, Italy.

Sept. 30 — Coupe Henri Deutsch de la Meurthe. (Airplane speed race.) France.

American elimination trials, if required, to be held about Aug. 15, at Mitchel Field, L. I.

Oct. 8 — International Parachute Competition. Rome, Italy.

Foreign News

Great Britain—In their efforts to surround their activities with every possible safeguard, the Daimler Airways Co., operating DH34 airliners between London and Paris, have installed in their engine repair sheds at the Croydon Airdrome, London, an aero engine testing plant. By an ingenious combination of electrical and hydraulic apparatus, the slightest defect in an engine under test can be detected and located and, in addition, the plant shows at a glance the exact power the engine is developing when running at various speeds.

The Daimler airliners are so constructed that the entire nose of the airplane, in which the engine is mounted, is interchangeable with a spare nose and engine with which each express is provided, thus enabling schedules to be run without interruption for repairs. Whenever it is desired to change engines, the express is run into the testing shed where, by means of specially arranged cranes, the nose, complete with engine, is swung out of the airplane and the spare nose with the overhauled engine substituted. The whole operation is completed in less than an hour, and as more familiarity is gained with this ingenious operation this time will be considerably shortened.

The 14-cylinder Armstrong-Siddeley "Jaguar" radial air-cooled engine recently passed the new Air Ministry type tests, which include five non-stop runs of 10 hours each, the first half of each period being run at full throttle, and the remaining 9½ hours at 90% of full power. At the end of each period a five-minute run at full power was given. After the tests the engine was dismantled, and it appeared to be in perfect condition, no appreciable wear being noticed any where. The fuel and oil consumption were very low, and the engine should be very useful when the R.A.F. comes to be equipped with new flying stock. The fourteen cylinders give very even torque and smooth running generally.—*Flight.*

* * *

Argentine—In order to develop the aviation branch of the Argentine army and to provide at the same time an improved air service from the capital to the smaller commercial centers, the director of the aeronautic service has suggested the establishment of an aerial mail system by cooperation between the ministry of war and the direction general of post offices & telegraphs, the department of commerce is advised by Vice Consul Houlahan, Buenos Aires.

The plan meets with the approval of the ministry of war and the postal administration, but the latter has stiplated that the administration of the service in peace times shall be under the exclusive jurisdiction of the Post Office Department, since that branch of the government would be responsible to the public under ordinary conditions. The suggested route from Buenos Aires includes the cities of Azul, Bahia Blanca, Patagones, San Antonio, Oeste, Rawson, Comodoro Rivadavia, Rio Gallegos, and Ushuaia.

A joint committee is now preparing a detailed plan, including the schedule of deliveries, time of flights, mail capacity for each trip, charges, etc.

* * *

Switzerland—A postal air service between Geneva, Nuremberg, Berlin, Königsberg and Moscow started on July 1. Mail for Moscow leaves Geneva twice weekly, on Wednesdays and Saturdays, by the ordinary Geneva-Nuremberg airplane. According to the schedule formulated, mail starts from Geneva at 7.00 a. m., arrives at Berlin at 3.55 p. m., is carried by the evening train to Königsberg, from where it starts next morning at 8.30 a. m. and arrives at Moscow at 7.15 p. m. An extraordinary tax of 3½d. per oz. is charged on letters sent by this mail. Negotiations are being carried on with a view to establishing new air services linking Nuremberg with Copenhagen, Prague, Warsaw, and Budapest.

* * *

Belgium—The Belgian budget for 1922 is said to carry an increased appropriation of 6,740,000 francs for aeronautics over the allotments for 1921, according to Consul General Morgan.

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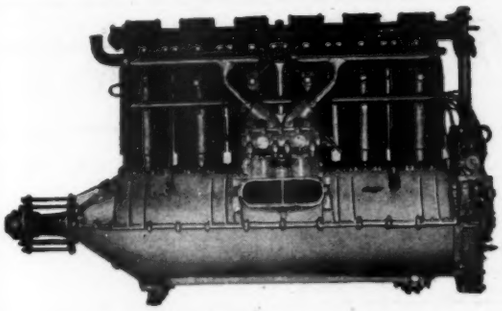

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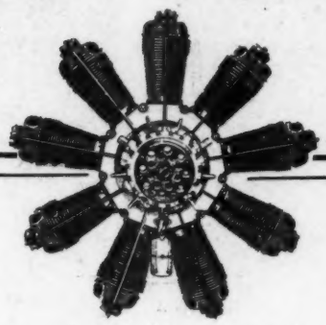

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